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AN INTRODUCTION TO THE GRAPHOLOGY OF LUDWIG KLAGES

THEA STEIN-LEWINSON
New York City

Although the reputation of Ludwig Klages is firmly established in his native Germany, he is almost unknown in other countries.[1] This may be attributed in part to the fact that he employs the development and origin of the German language as a very important means of exemplifying and proving his theories, making, of course, a translation of his main works difficult. The greater obstacle, however, seems to lie in his unique, intuitive philosophy on which all the interpretations of his objective findings are based.

Klages' work is divided into four parts, each dependent upon the other in pyramid-like fashion: philosophy, characterology, the science of expression, and graphology. Accordingly, "Graphology is one aspect of the science of expression which in its turn is an aspect of the science of character; the science of character, however, is an indispensable element of the potential knowledge of the essence of the world."[2] This sentence may be considered an expression of Klages' entire work. Because of the dependence of each higher field in Klages' work upon a lower one it is advisable to interpret briefly his philosophy, characterology, and his science of expression before presenting in greater detail his system of graphology.

I. Philosophy: The Antagonism of Mind and Soul

Klages is considered a metaphysician. His philosophy is not logocentric but biocentric; the world of man is a battlefield between "soul" and "mind."[3] In this struggle, the mind triumphs and is the victor in a gradual but certain destruction of the soul. This explains the title of his principal work: *The mind as the antagonist*

[1] *The Science of character* (Cambridge, Mass., 1932) is the only one of Klages' books that has been translated into English.

[2] *Graphologie* (Leipzig, 1935), p. 89.

[3] In *The science of character,* the German word *Geist* is translated by "spirit." In my opinion this word is not an accurate translation of Klages' conception of *Geist,* and I prefer the word "mind."

of the soul.[4] The terms "soul" and "mind" require an explanation because of their special meaning in Klages' system.

The word "soul" does not imply the soul of the human being only; Klages also ascribes soul to animals, plants, mountains, wind, water, etc., in short, to all elements of nature or phenomena. The soul represents, or rather *is*, Life itself—the rhythmic course of the Cosmos.

The soul of any phenomenon[5] has two poles, the archetype and its substance (archetype-soul and substance-soul): a passive-receptor and an active-effector pole. According to Klages, the passive-receptor pole is the most characteristic for the soul. In its inception, the soul leads a passive dream-like existence living through the influence of images, and only after it is released (forced by the polarity of another soul to reveal itself) does it become active in manifesting itself to the world of phenomena. In other words, the original characteristics of the soul are: passivity, unconsciousness, night, dreaming, boundlessness, distance, and rhythm. This constellation, the predominance of the contemplative side of the soul as opposed to its substance, is apparent in the plant which represents transition from the mere phenomenon to the creature; several species of plants already possess the power of self-motility.

In the next stage of development—the animal—the soul is no longer free, but is imprisoned in the living body which now assumes the leading role. The functions of the living creature are: physical sensation (body pole) and contemplation (soul pole). In other words, *the living body is the phenomenon of the soul; the soul is the meaning of the living body.* This sentence, in essence, is the basis of Klages' science of expression. In lower animals, physical sensation is dominant over contemplation; in higher animals, contemplation is strengthened at the expense of physical sensation. Even in prehistoric man, contemplation was dominant over the sensory-effector processes.

It was in this prehistoric state also that the mind began its destructive work of splitting the "receptor act" into "impression" and "apperception." When this was completed, the creation of historic man took place. It meant the transition from passivity to activity, from meditating to thinking, from the female to the male

[4] *Der Geist als Widersacher der Seele* (Leipzig, 1929 and 1932).

[5] There are two kinds of phenomena: the "mere phenomenon" and the "creature." The "creature" (animal, human being) distinguishes itself from the "mere phenomenon" by its power of "self-motility."

principle, from unconsciousness to consciousness, from liberation to bondage, from rhythm to measure, from dream to wakefulness, etc. According to Klages, life (the life of the soul) is sleep; consciousness annihilates the soul.

Klages considers the irruption of the mind into the life-cell as disastrous. This grows out of his conception of the mind and its functions. The mind has the destructive function of logical thinking and of regulating will. Actually, it possesses no face, no expression; it is noticeable only through its destructive effects on life. The specific qualities of the mind are best exemplified by their contrast to those of life: "Life and mind are two diametrically opposed powers which are constantly at war with each other." Life passively experiences the things that happen: it is the basis of experiencing. The mind delimits, specifies, labels, and numbers the phenomena of nature.

The functions of the mind have receptor and effector poles corresponding to those of the soul: logical thinking corresponds to contemplation; will power ("the central motive of life-repression"), to physical sensation. Diagram A illustrates this polarity:

DIAGRAM A: THE POLARITY OF SOUL AND MIND

Polarity	*Soul*	*Mind*
Receptor Pole	Contemplation	Logical Thinking
Effector Pole	Physical Sensation	Will

Logical thinking, one function of the mind, is the basis of all science. Its characteristics are objectivity, logic, and monistic explanation. Logical thinking interrupts the rhythmic course of life; it is the destructive tendency of the mind. The will, the second function of the mind, regulates and inhibits life; it overcomes obstacles and is the cause of action which achieves the aim set by thinking. When feelings become "motives," they are changed into an active tendency through a volition exactly adapted to its aim. The wish passively aims toward something; the will actively has the aim as its purpose. Potentially, wishes include everything imaginable, but the real aim of volition is only that part of the wish which one thinks possible of realization. The will is also the experience of physical resistance; it is the negation of reality and,

instead of being related to the past, is related to the "ghost" of the future.

Klages' ideas about the development (from life → to thought → to will) are most clearly presented in his discussion of human evolution. This development occurs in three stages: the prehistoric man (the Pelasger),[6] the Prometheic man (up to Leonardo), and the Heracleic man (the modern man). The Pelasger is the human being before the irruption of the mind; he is the passive dreaming creature in whom contemplation is the predominant function. He is in direct contact with the life of the Cosmos and the symbols of reality. The last evidences of the Palasger man are found in the primitives. After the irruption of the mind into the life-cell, the growth of consciousness occurs in the Prometheic man. The mind, however, is still dependent upon life, and the images are still real (as in China, Asia, and Europe with their speculative philosophies). In the third period, the Heracleic man developed the urge for action which is the basis of the Christian world-conception. In the Heracleic man, the mind is freed of its dependence upon the soul. Thenceforth, the activity of thinking and the will for power are free to develop. The development proceeds from life to mind. The historic man is the carrier of consciousness. The machine is gradually taking possession of modern man, and the mind is carrying on its destruction of the soul-unit, until that time when all of life will have been killed; but death of the soul will mean death of the mind and of the human being too. Life can exist without the mind, but the mind is nourished by life and is nothing without it. Klages' outlook is pessimistic.

II. The Science of Character: The Five Elements of Personality

The only place in the universe where soul and mind meet and merge is the personality. The basic principle upon which Klages' characterology is founded is one which presents the personality as a system of *dynamic* relationships.

According to Klages, there are five fundamental elements or attitudes which constitute character: the material, the nature, the structure, the techtonic, and the aspect. The *material* constitutes the quantitative properties of character; it represents the talents in their totality; the *nature* is a composite of the properties of direction in their totality, the driving forces or interests; the *structure*

[6] This name is taken from Bachofen, *Graebersymbolik.*

is a relational quality and does not indicate a person's stock of force or the directions in which the forces develop, but rather the differences of manner or mode with which the forces will pursue their course (e.g., lively or sluggish); the *techtonic* or architectural quality relates to the harmony or disharmony among the other three qualities—material, nature, and structure; it is comprised of coherence, measure, harmoniousness; or incoherence, contradiction, disharmony; or firmness, stable nature and infirmity (unstable nature), maturity and immaturity, and the like; it is an original quality in itself. The *aspect* of character is composed of properties of conduct, such as righteousness, honesty, exactness, loyalty, etc. These latter are, according to Klages, nothing but the pseudo-typical reactions to social life; they can be analyzed further. In non-Klagean characterology they are the basis of the "pseudo-types" and considered final properties. They are changing traits of behavior and, when thoroughly analyzed, can be grouped under Klages' qualities of material or nature. Inasmuch as techtonic and aspect are based on the first three groups of character qualities (material, nature, and structure), it is most important to give the latter special consideration. The properties of material are of a quantitative character; those of structure, relative; those of nature, directive. One could say that Klages views the personality as a variable three-dimensional living entity (material, nature, structure) with varying coherence (techtonic) and varying reactions (aspect).

The *"material"* comprises all the endowments and talents of a person, his potentialities, his ability to feel, will and reason. As a whole, it is the capital with which one can work, or which one can waste. There are quantitative differences among individuals. Material also includes such capacities of the intellect as memory and recollection, the faculties of imagination (faculty for impression), and the faculty of apprehension. These two latter faculties constitute the basis for perception; the former for vital conditions, the latter for intellectual conditions. In the contrasting qualities of the imaginative faculties (full and empty, warm and cold, heavy and light, deep and shallow, etc.) as well as in those of the capacities of apprehension (associative and apperceptive, subjective and objective, concrete and abstract, etc.), we find again representatives of both soul and mind. "All properties of talent in character are quantitative since each of them can be measured by a scale; all the properties of the structure are relative properties, each being

represented by the proportion between magnitudes."[7] This makes a clear distinction between material and structure of character with special emphasis on the relativity of the structure as characteristic.

There are three properties of *structure*: the capacity for having one's feelings aroused, which is often referred to as "affectivity"; the capacity for arousing one's will, which approximates the general term "temperament"; the personal capacity for expression or the "threshold of expression" (*Naturell* in German). The capacity for arousing feelings, will, and expression are dependent either on the strength of the corresponding urges or the weakness of the corresponding blocking power, the resistance. This relationship which comprises all the three properties of the structure is transformed into an equation:

$$\text{C (capacity for stimulation)} = \frac{\text{U (urge)}}{\text{R (resistance)}} = 1$$

(see *The science of character,* Chapter VII). It is not difficult to re-identify, in the forms of the urges and the resistance, the representatives of soul and mind. It might be interesting to mention that, according to Klages, the contrast between the sanguine and the phlegmatic temperament depends upon the excitability of the will.

The third, and in Klages' mind the most important property of character, is the *nature,* a directive property composed of the driving forces or the disposition of feelings. Driving force (*Triebfeder*) corresponds to "interest." By a driving force Klages means the direction of a person's volition. In connection with volition, we must distinguish between dependence on mind and dependence on life. "The immediate gauge for the capacity of one personality is another personality, the gauge for driving forces is another group of driving forces within the same personality."[8] Up to the present time, the analysis of driving forces has been made according to inadequate standards of evaluation. The driving forces are in part motives of the will and in part dispositions of the feelings. When we speak of driving forces we do not mean vital feelings, but rather the so-called Ego-feelings. We find them either (considering the Ego as representative of the mind) on the side of self-assertion *(Selbstbehauptung),* or on the side of self-yielding[9] (*Selbst-Hingabe,* the side of the soul), which together form the

[7] *The science of character,* p. 140. [8] *Ibid.,* p. 86.
[9] *Ibid.,* translated by the word "self-devotion."

basis for the system of driving forces. There can be no feeling of the Ego without resonance of the vital side of man, and, conversely, no vital feeling without the resonance of the Ego. The driving forces must be regarded as mutual competitors because of the split in man between mind and soul.

Every impulse toward *self-assertion* is (with reference to vitality) an impulse that *binds* certain vital processes. Conversely, every impulse toward self-yielding is an impulse that unbinds or *releases* certain vital processes. Thus all driving forces are divided into two main divisions, namely, those of *bonds* and those of *releases* with corresponding subdivisions.

III. Excerpts from the Science of Expression[10]

In the human being we distinguish several different kinds of movements: the reflex-movement, the impulse-movement, the expressive movement, the mechanical movement, and the volitional movement. The expressive movement is one aspect of the impulse movement; the reflex movement is a component part of the expressive movement; mechanical movements were previously impulse-movements and belong to this category; volitional movement is an impulse-movement which is directed by volition. The three main types with which we are concerned are the expressive movement, the impulse-movement, and the volitional movement. What differentiates them from each other is their relationship to their aims. The expressive movement has no ulterior aim, but carries its meaning within itself; the impulse-movement has its aim in the environment; and for the volitional movement, the conscious willing of the aim is significant. Actions (in contrast to a passive dream-like existence) are volitional movements, and handwritings belong to this category. The question that interests us here is whether it is possible that the volitional movements express personality, that is, personality in its essence. Klages' answer to this is affirmative. He offers the following explanation. The mind would not appear in action at all, if it were not coupled with the vitality of the person. Klages tries to prove this in a Diagram B,[11] which illustrates the volitional movement. Movement (M) is the result of volition (V) which is the present state of the personality (P).

[10] *Grundlegung der Wissenschaft vom Ausdruck* (Leipzig, 1936).
[11] *Ibid.*, p. 28.

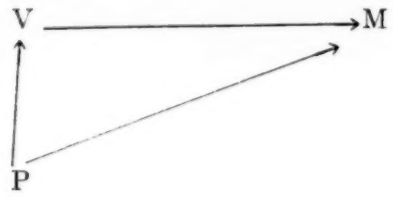

DIAGRAM B: THE VOLITIONAL MOVEMENT

From here Klages proceeds to the thesis: volitional movement expresses the personality of the willing person. The volition itself is not expressive, and the aim of the volitional movement is not important in this respect either; the only thing that is of decisive importance is the individual course of the movement.

There is unity of character in all the volitional movements of any individual, or every personal movement will assume that manner of movement which is characteristic of the individual. For example, the writing movement (M) is the result of the will to express oneself by means of a prescribed writing system, the volition (V), which is the present state of some personality (P). *Consequently, the handwriting is a volitional movement and must necessarily carry the individual stamp of any personality.*

The volitional movement (being an impulse-movement directed by volition) cannot exist without the impulse-movement, but the impulse-movement can exist without the volitional movement. Every state of the living body is the expression of an impulse-system; every attitude finds expression. Every movement of the living body is a vital movement (that is, impulse- or modified impulse-movement), and each vital movement has two constituent parts, the impulsive and the expressive. Klages says that the expressive side of the vital movements (that is, of every movement of the living body) is the visible manifestation of the impulses and feelings or of the psychic life of the human being and formulates the following principle of expression: *"An expressive (body)-movement is the visible manifestation of the impulses and feelings which are represented in the vital movement of which it is a component part."* The second principle reads: *"The expression manifests the pattern of a psychic movement as to its strength, duration and direction."*

In short, expression considered as an aspect of impulse-movement and, consequently, of the volitional movement, represents the essence of the personality.

The question now arises: how is it possible for the human being to perceive the expression of the soul, and how is he able to interpret this expression? The answer is that the human being's capacity for expression is by nature co-ordinated with his capacity for impression. Impression is divided into two functions: a passive one, the receiving of the impression; and the active one, the objectification of the impression which makes it possible for one to become aware of one's own nature as well as that of others. It is through this objectification only that any expression receives its meaning. It is the foundation of the science of expression.

Finally, the principle of representation or "guiding image" is one of the most significant portions of Klages' science of expression. Klages formulates the principle of representation as follows: *"Every volitional movement is also induced by its personal 'guiding image'" (Leitbild).* This principle of the "guiding image" has proved itself very fertile, especially in graphology. With regard to the interpretation of expressive movements, according to Klages, it seems that the expressive and the representative data are usually integrated in the same direction, and that the "guiding image" usually accentuates the expressive tendency. In the artistic productions of different historic periods, cultures, races, we are able to recognize the guiding image characteristic of each of them.

IV. Excerpts from Graphology[12]

The tangible test of Klages' science of expression is his system of graphology which he considers to be the same as the psychology of handwriting. Handwriting is a permanent and measurable record of volitional movement which can be used for comparative study at any time. Handwriting is not only an expressive volitional movement but is also formed by the personal "guiding image" *(Leitbild)* and is markedly influenced by the individual's sense of space. For Klages, handwriting is, above all, the "sediment of living," of character; it is a rhythmic movement condition, in which each single movement reflects the entire personality, the sum total of the writer's intellectual, emotional, and physical tendencies. Handwriting is an agent of psychodiagnostics that can be used for the most varied purposes. As can be readily understood, a graphology based on Klages' philosophy of expression must naturally reject the so-called graphology of isolated signs. This latter

[12] *Die Probleme der Graphologie* (Leipzig,1910); *Handschrift und Character* (Leipzig, 1928); *Graphologie* (Leipzig, 1935); *Einführung in die Psychologie der Handschrift* (Heidelberg, 1928); *Graphologisches Lesebuch* (Leipzig, 1933).

method tries to interpret each isolated sign of writing as a specific character-trait, thus disregarding the vital basis of handwriting. According to Klages, one must be concerned with a physiognomy of functions and not with a physiognomy of organs. The real cause of an isolated detail becomes comprehensible only insofar as it is related to the living whole. Klages says that handwriting is not a separable mixture (like peas and lentils) but a compound. Every symptom bears the color of all the other symptoms with which it occurs. The criteria which Klages uses for the interpretation of handwriting are regularity and harmony, the *Formniveau,* spaciousness, speed and pressure, width, slant and pastosity, forms of connection and degree of connection, copiousness and character of direction, initial emphasis, overlining and distribution of the movement, spacing of the writing as a whole and related features, also the indications of the so-called "acquired" handwriting. I shall now proceed to a discussion of some of the fundamentals which form the basis of handwriting interpretation.

Rhythm plays a decisive part in Klages' system of graphology. He illustrates his conception[13] of it by contrasting rhythm with measure in reference to "time": rhythm is similar reproduction of similar periods; measure is the mathematically exact repetition of same periods. Rhythm is an attribute of life (soul), while measure is an attribute of the mind. The whole cosmos is a rhythmic happening as exemplified by the nature-events, day and night, summer and winter, high and low tide, propagation, etc. The rhythmic flow of life is disturbed by the wakefulness of the mind. The conflict between rhythm (soul) and measure (mind) is manifested in the handwriting. There exists not only a rhythm in time, but also a rhythm of form, movement, and distribution with which we are most concerned in graphology.

The criterion of the double meaning (plus or minus) of every graphological indication is the so-called *Formniveau,* a factor of greatest significance. It indicates the rhythmic reproduction of original forms in the handwriting; it means the fullness of life. The stronger the rhythm of the form, the more is original life expressed in the handwriting, the higher is the *Formniveau,* and vice versa. Beauty of production is always dependent upon the predominance of form-rhythm. We could say: *the life of the handwriting lies in the strength of the form.* We have to identify the originality of the form before we can estimate its capacity for

[13] *Vom Wesen des Rhythmus* (Kampen a/Sylt, 1934).

rhythmic division. We find the measurestick for the genuineness of life-expression in the degree to which life has mastered and embodied the rule, the product of the mind.

The higher above the average of its period and its surroundings is the original form-rhythm of the handwriting, the more positive must the evaluation be; similarly, the converse is given a negative value. Banality, set patterns, school-copy mean just so many negations of life. Klages distinguishes five degrees of *Formniveau,* starting with the most original and rhythmic writing and descending into unoriginal and arhythmic or regulated writing. It is easy to see that the basis of this fundamental evaluation is taken from Klages' general attitude. His gradation is from little life to fuller life to fullest life. This evaluation has nothing to do with intelligence. Consequently, the *Formniveau* is for Klages the gradation between full living form-rhythm and deadly periodicity. The fullness of life is characterized by the fact that one handwriting is superior to another by the predominance of rhythmic individuality and originality.

An important point is "harmony" *(Ebenmass)* in handwriting, which is also a rhythmic condition. But the strength of this harmony-rhythm is based upon an evaluation of the distribution-rhythm and the movement-rhythm of the writing. We speak of a high degree of harmony, if there is a rhythmic distribution of the writing impulses with no disturbances of their flow. A low degree of harmony is indicated by a lack of distribution—and movement-rhythm or a disturbance of their flow. The main question rests in whether or not these modes of rhythm are disturbed or undisturbed. As to the distribution-rhythm of the writing, we find that in each writing field the word-bodies stand out against the background (the empty space), in a definite, characteristic way. Sometimes the optic impression is one of balance, sometimes one of conflict. The former reveals harmony, the latter lack of harmony and, consequently, lack of distribution-rhythm. One can judge the rhythmic distribution best by considering the word-intervals only. The movement-rhythm is expressed in the writing by rhythmic fluctuations of the writing elements (pressure, width, size, slant, etc.). Consequently, the "harmony" in a writing may be disturbed by an entanglement in the writing which is usually caused by the great contrast between short and long letters and by the unrhythmic (not the irregular) proportion of writing elements.

Harmony can be called the gauge for personal excitability of feelings. It expresses the relationship of two opposite functions: psychic urge and psychic resistance (see "affectivity," p. 168). Harmony in handwriting corresponds to equanimity; a lack of harmony, to excitability. Impulse and resistance, no matter what their nature, receive their dynamic energy from the strength of the individual life, expressed in the plus- and minus-valuation of high and low *Formniveau*. Consequently, harmony may be accorded two possible interpretations: equanimity (the lack of excitability) as a plus-valuation (calmness and quietness) can arise from psychic depth (symptom of fullness of life); it can, however, also manifest itself as a minus-valuation (unsusceptibility, unsensitiveness, dullness, being thick-skinned) which arises from paucity of life. This contrasting evaluation is also valid for lack of harmony. Excitability of feelings can be based on either fullness of life (plus)—the sensitive person, open and susceptible to the slightest fluctuations of feelings—or from paucity of life (minus)—the irritable person, the curious person, the person who is craving for sensations, the person who is excited about nothing at all. "Harmony" is an example of how the quality of structure can be expressed in the handwriting.

Another important aspect of handwriting is *regularity*. Regularity or irregularity refers to the size, the width, and the slant of writing. While the degree of *Formniveau* and "harmony" is found by an evaluation of some kind of rhythm, the degree of regularity is ascertained by a measurement of the scope of oscillation in the writing features. Klages holds that the mind and its functions, logical thinking and the will, have practically no expression, meaning that they become apparent only through their effects on the forms of life, and that the will is the regulating and blocking force. If there is regularity in the writing movement, it must be attributed to the influence of the will, the regulating principle, the nature of which is, briefly, to suppress change and mutation. Consequently, the degree of regularity will be an index to the predominance of will. It does not follow, however, that regular writing must necessarily be interpreted as an indication of strong will and irregularity of weak will. When there is a "predominance of will," one has to consider the disposition of the person, how much vitality had to be overcome and forced into regularity. Will and feelings are in opposition, and the will predominates insofar as it is able to master the feelings. Feelings represent nature and life; will repre-

sents the mind. There are different degrees of weakness of will which are expressed in the irregularity of writing; either the feelings predominate by reason of the weakness of the will (e.g., fickleness, irresolution); or by reason of the enormous strength of the original impulses. Here again we encounter the fundamental principle of the system that every expressive indicator includes the possibility of a double meaning. Regularity is found in the handwriting of the pedantic bookworm and also in the handwriting of a strong and powerful inpulse-person, who controls life with an even stronger will, as, for example, Bismarck. Irregularity is found in the handwriting of the unsteady adventurer and in those of very strong will, who, nevertheless, are overpowered by passionate feelings and impulses, as, for instance, in the case of Beethoven. Whatever evaluation is chosen should depend upon the *Formniveau* as the basis of standardization. Regularity is the expression of the material quality in handwriting (will and feeling).

The next example is the expression of an intellectual capacity, the *degree of connectedness* (another material quality). There are handwritings in which single letters stand separated from each other. This is unconnected handwriting. There are other handwritings in which each letter is connected with the following letter without interruption. This is called connected handwriting. In between the two are the so-called "equilibrated" writings in which we find an equal amount of connected and disconnected writing. (The case of an irregular change between connected and unconnected writing indicates the presence of serious disturbances.)

Writing is systematized conduct and its systematization is demonstrated in the regular stopping and starting of the pen. Connected writing can be considered an unnatural connection of natural life-factors, while disconnected writing can be considered unnatural disconnection of natural life-factors. The activity of logical connecting is extreme in cases of non-observance of the natural pauses in movement. The positive interpretation of connectedness is logical activity and a gift of synthesis and dialectic, deliberation, calculation, etc. Negatively, it is lack of new ideas—the ability of the mind to elaborate only on what is present. The positive interpretation of unconnected writing is wealth of spontaneous ideas, which often results in original discovery and intellectual initiative; or practically, in cleverness and will. The negative interpretation

is the tendency to be erratic, to lack logic; practically, lack of consideration and common sense. One could also say that disconnected writing is, in a positive sense, the expression of intuition.

Another point of interest is the manner in which the principle of representation, the "guiding image," effects handwriting—and its interpretation (p. 171). Certain channels of expression for the impulse for representation are the conspicuous places in the writing-field, such as the beginning of letters, paragraphs, and words; this is *initial emphasis*. Emphasis of the initial letters originates in a desire for self-estimation; in certain characters, it develops into a desire for greatness. The most favorable condition is a state of equilibrium between the self-confidence of a person and his self-estimation. In writing, this is expressed by a proportionate relationship between the width and the height of the initial letters, and the rest of the writing. The positive meaning of initial emphasis is the desire for significance, its negative meaning is vanity. The initial emphasis is the graphological indication of a driving force (p. 168).

I should like to mention briefly at this point, that each graphological indication is in itself either an indication of the releasing of life-forces or of the binding of life-forces (i.e., *releases*: speed, spaciousness, irregularity, etc.; *bonds*: slowness, smallness, regularity, etc.) (p. 169). The proportion between releases and bonds in handwriting is of great significance and plays, for example, an important part in the interpretation of "acquired" handwriting.

It is not possible within the space of this article to present a more detailed account of Klages' system of graphology. My purpose is to show the development of some of Klages' fundamental concepts which led from his system of philosophy, through characterology and the science of expression, to his system of graphology. As a result of Klages' leadership, graphology has been used as a psychodiagnostic method in Europe for the last three decades and has found practical application in the fields of child and vocational guidance, in cases of personality adjustment, for various business and legal purposes, and for personality studies of patients suffering from certain chronic diseases.

PHYSIOLOGY OF THE BRAIN IN TWINS

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One of the most difficult problems of modern genetics is application to human psychology. Geneticists have many times sought to investigate this complex side of human nature by using the materials and methods of psychology. However, the research methods of modern psychology (even leaving aside its various shortcomings that cannot be discussed in the present article) are not, especially as compared with modern physiology, sufficiently exact and objective.

The method of investigation of higher nervous activity as evolved by I. P. Pavlov and his school seemed to me sufficiently complete as to allow of the study of certain problems of genetics of the nervous system. It must be admitted that this method does not as yet entirely suffice for the investigation of such problems which psychology seeks to solve by its own methods. Nevertheless, some of the principal processes of the higher nervous activity may in this way be successfully studied.

As nobody before me had to my knowledge done any work in the field of the genetics of higher nervous activity, I took my plans to I. P. Pavlov, who showed considerable interest in them and referred me to Professor N. I. Krasnogorsky. It was in Professor Krasnogorsky's laboratory (All-Union Institute of Experimental Medicine) that I started my investigations on conditioned reflexes in twins. This took place in 1933, and since then the research work has continued up to the present time.

My observations were made chiefly on a pair of monozygotic girl twins—Tamara and Nina I., born in 1923 and resembling each other in many respects (Fig. 1). The color of hair, eyes, and skin are the same for both girls; they are nearly of the same height and their fingerprints are alike (Figs. 2 and 3); etc. These children belong to a low-income family and live constantly together. One of them—Nina—suffered in her first year from inflammation of the

ear, which led to her contracting torticollis. She is behind her sister Tamara in school. Tamara is morely lively and more capricious, and their father loved her more than Nina.

We chose one-egg twins because these have a similar hereditary endowment (belonging to the same genotype), and for that reason all differences that may be observed in them have to be relegated to environmental influences. In view of this the method of twins may be used for the purpose of determining the relative roles of heredity and environment in the formation of various characteristics of the organism—in our case we dealt with the nervous system. This seems the most certain of all genetical methods for the purpose of solving our problem.

The method of investigation of reflexes which I employed is based on Pavlov's method, but it is especially adapted to the study of reflexes in man. This adaptation was first made by Professor Krasnogorsky and his co-workers, and its detailed description is to be found in Professor Krasnogorsky's papers.[1] We shall mention here in brief only the most important features of the method.

The child that is to be studied is made to lie on a table in an isolated room, and above his mouth a special apparatus is fixed from which the experimenter, by pressing an india-rubber ball, may let drop into the child's mouth about ten sugared cranberries. These constitute the "reinforcement" in the process of establishing the conditioned reflex. The place of the experimenter is an adjoining room which contains the necessary apparatus; there is a small window through which he makes observations of the child.

The secretory reflex mainly studied is the discharge of saliva, but observations are made also on a motor reflex—the movements of the skull. Observations of the salivary reflex are made on one of or on both parotid glands. For this purpose a modification of the Lashley saliometer is used. The small flat apparatus is fixed by suction above the excretory duct of the gland and connected with it by means of a fine rubber tube. Another tube starting from the inner chamber of the apparatus which receives the flow of saliva conducts the latter to a special device serving to register the drops of saliva. It consists of a lever, and each drop of saliva falling on the arm of the lever produces a momentary closing of the circuit

[1] N. I. Krasnogorsky, "Bedingte und unbedingte Reflexe im Kindesalter," *Ergebn. d. inneren Medizin*, 1931, **39**; I. Kanaiev, "A Study of Conditioned Reflexes in Monozygotic Twins" (Russian), *Arch. des Sc. Biol.*, 1934, **34**, Leningrad-Moscow; "Further Studies of the Physiological Activity of the Brain in Monozygotic Twins" (Russian), *ibid.*, **42** (in print).

FIG. 1—Monozygotic twins I: Tamara (above) and Nina (below). The latter shows torticollis.

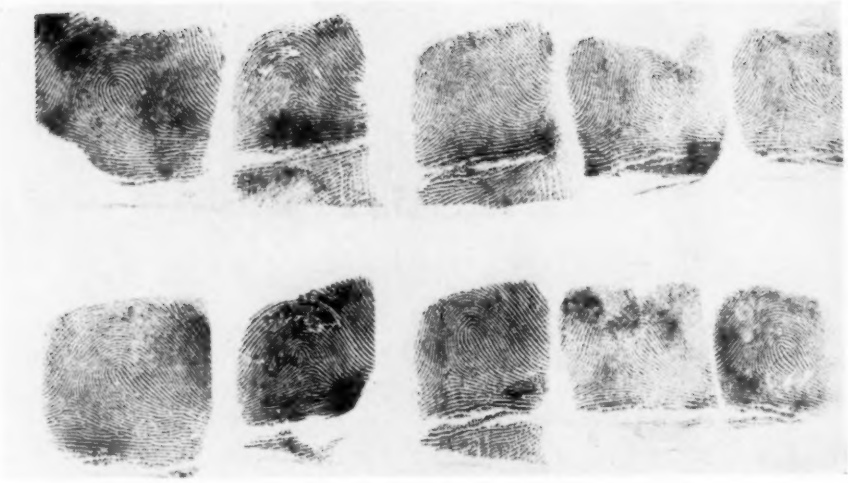

FIG. 2.—Righthand fingerprints of the monozygotic twins I: Tamara's above, Nina's below.

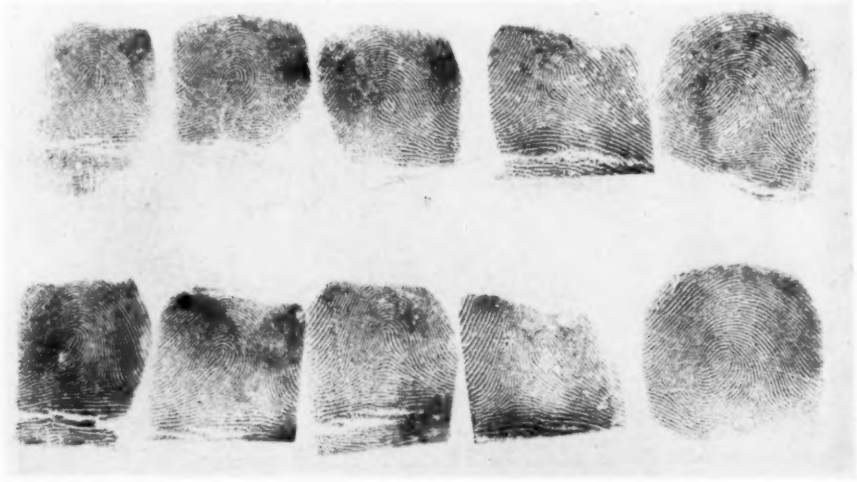

FIG. 3.—Lefthand finger prints of the monozygotic twins I: Tamara's above, Nina's below.

that is transmitted to a kymograph and registered on a sheet of paper in the form of a vertical line made in ink by means of a glass pen. In this way all the saliva drops emitted in the course of a certain period of time (usually 30 seconds) may be counted. Simultaneously, on the same sheet of paper are registered the time in seconds, the introduction and cessation of the stimulation (metronome, bell, etc.), the giving of reinforcement, and the movements of the skull. These latter are transmitted by means of a rubber cushion fixed under the child's skull and connected by a tube with the pen of the kymograph (Fig. 4). The ink-written sheets keep very well. In addition to these, detailed notes of the experiment are made.

The Krasnogorsky method gives an insight into the physiological state of the human nervous system by using salivary secretion as a quantitative symptom exactly characterized by the number of

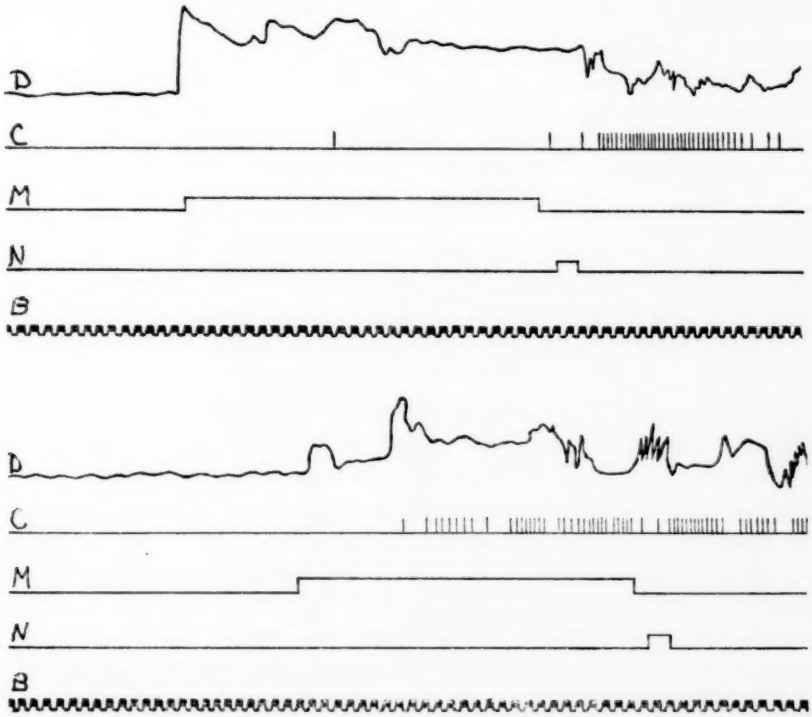

FIG. 4.—Kymograph record of the first experiment relating to the *law of force*. D—moving of the skull; C—salivary secretion; M—action of the metronome; N—reinforcement given; B—time in seconds. Above—tracing obtained for Tamara, below—tracing obtained for Nina.

drops of saliva discharged in a given period of time. In other words, the stimulation of the nervous system is expressed by an increased number of drops of saliva, its inhibition by the opposite effect, etc. In short, the quantity of saliva emitted serves as indicator of the condition of the nervous system.

We accept, without seeking to criticize it, this point of view on which the researches of Pavlov's school are based as a foundation for the quantitative study of the nervous activity by means of salivary secretion.

This makes it possible to employ the statistical method in the study of the phenomena under observation, a method which hitherto has seldom been applied by Pavlov's school.

When making investigations of the nervous activity of man from the genetical point of view, we are led to combine Pavlov's method of conditioned reflexes with the twin-research method and the method of variational statistics. What, then, is the result of such a combination of the methods mentioned?

Our laborious examinations have not as yet come to a close, and for the present only a few results may be discussed, but these serve to prove that the problem of the genetics of the higher nervous activity may be studied.

First, *spontaneous* secretion must be taken into consideration. This means the discharge of saliva in repose, i.e., in the absence of any conditioned or unconditioned stimulations from the stimuli controlled in the experiment.

Observations of the twins were made ten times in the course of half an hour, and all the drops of saliva emitted were registered on the kymograph. Next, the number of drops obtained in one experiment during a period of 30 seconds was found by counting the lines traced on the sheet of paper. This gave sixty figures for each experiment. For each experiment a variational row was established, the mean and the standard deviation computed. Such data were obtained for all ten trials. It was found that in the two girls the mean and the standard deviations were far from coinciding. With Nina—the more passive of the two—the mean for 30 seconds amounted to 0.5 drops for the ten trials, while with Tamara, who was more impressionable and capricious, the means varied between 3 and 8 drops in 30 seconds, this child showing correspondingly higher average of the standard deviation.

Evidently the conclusion is that this difference must be con-

sidered as meaning that the general excitability of the nervous system is not the same in both twins. Nina is much less excited than Tamara by outward impressions—which, it is true, are reduced to a minimum during the experiment—as well as by her emotions, thoughts, etc.

The findings were different when *unconditioned* secretions were studied. Unconditioned secretion means a secretion caused by some unconditioned stimulus. In our case it consisted in sugared cranberries; and the same stimulus was used for the elaboration of conditioned reflexes in the child.

Measurements of the unconditioned secretions were also taken by tracings on a kymograph. The drops were counted for each period of 5 seconds, in the order of their appearing, only during the first 100 seconds after the child had been given the cranberries, as later on secretion is spontaneous. On the whole, counts were made for twenty reinforcements, and the data obtained were used for the tracing of curves depicting the course of unconditioned secretion for a period of 100 seconds after the dose of cranberries had been given. The figures of the two twins proved to be very much alike (Table 1). In order to evaluate the degree of similarity, identical investigations of unconditioned secretion were undertaken on another pair of one-egg twins (also girls)—L, one year younger than Tamara and Nina; and on a pair of dizygotic twins—B—(girl and boy). The figures obtained for the three pairs of twins present a marked difference when the various pairs are compared.

TABLE 1. THE UNCONDITIONED SECRETION FOLLOWING THE PRESENTATION OF FOOD IN FIVE SECOND PERIODS

		5″	10″	15″	20″	25″	30″	35″	40″	45″	50″	55″	60″	65″	70″	75″	80″	85″	90″	95″	100″
I.	Tamara	5.3	8.7	8.4	7.3	5.5	5.9	5.3	3.6	3.4	3.3	2.5	2.6	2.5	2.0	2.2	1.8	1.7	1.6	1.0	1.0
	Nina	6.4	9.0	8.5	7.5	6.8	5.5	4.6	3.9	4.8	4.0	3.8	2.8	2.7	2.4	2.0	2.2	2.0	1.4	1.3	0.8
L.	Nadia	3.8	5.4	5.2	4.9	3.8	3.9	3.4	3.2	3.2	2.7	2.5	2.4	2.0	1.9	1.6	1.5	1.7	1.7	1.3	1.3
	Vera	3.5	4.7	5.7	5.3	3.7	3.8	3.4	3.1	3.0	2.2	2.3	1.8	1.9	1.6	1.4	1.1	1.2	0.9	1.1	0.6
B.	Rid (♂)	8.2	10.5	9.3	8.6	7.6	6.6	5.7	5.0	3.8	2.9	2.8	2.5	2.5	2.1	1.7	1.3	1.4	1.3	1.6	0.9
	Donara (♀)	6.4	7.6	6.2	6.0	5.0	4.1	3.7	3.0	2.9	2.5	2.1	1.8	1.7	1.6	1.4	0.9	1.2	1.0	0.8	1.2

As regards the two pairs of monozygotic twins, there is a striking similarity between the figures characterizing the twins of one pair when compared with the pair of dizygotic twins. On assessing in drops the difference existing between the figures of each pair the *average differences* can be computed:

Monozygotic twins, I, Tamara and Nina	0.52 drops
Monozygotic twins, L, Nadia and Vera	0.32 "
Dizygotic twins, B, Rid and Donara	1.29 "

In the dizygotic twins the intra-pair difference is more than two to four times as great as that in the one-egg twins; moreover, between the latter pairs the difference is not great.

If these data come to be confirmed on a larger amount of material, it may be supposed that unconditioned secretion is to a great extent influenced by heredity (by the genotype) and that it is precisely in the unconditioned reflex that the similarity of monozygotic twins is markedly expressed. In the future, perhaps, the unconditioned secretion, together with other characteristics pertaining to Siemens's[2] method, may prove to serve as a criterion for distinguishing the monozygotic from the dizygotic twins.

Let us now consider the *conditioned reflexes.* In the twins I, studies were made of both positive and inhibitory reflexes, brought forth by various conditioned stimuli (metronome in various rhythms, ringing of a bell with different degrees of loudness, red light, dermal irritation, etc.). In all, more than eleven hundred various stimulations were employed.

From the very first reinforced conditioned reflex obtained with a metronome as stimulus, the response in the twins I was identical to such a degree that with both girls the reflex was established on the same day and even after the same number of stimulations (thirty-six). The children even gave the same number of drops of saliva.

Subsequently, in the formation of further conditioned reflexes, the same similarity could be observed, although occasionally certain divergencies appeared.

If these results find corroboration in the examinations of other twins it may be assumed that the rate of formation of conditioned reflexes depends largely on the hereditary constitution of the individual. Further experiments must determine how far this property depends on external influences.

The state of things proved to be quite different when the so-called *law of force* was examined. It has been found by Pavlov's school that when the conditioned stimulus increases to a certain extent there ensues a proportionate increase of the conditioned reflex. Consequently, it was to be presumed that together with an increase in the loudness of the ringing of a bell there would be in conditioned secretion an increase in the number of drops of saliva given off in

[2] H. Siemens, The diagnosis of identity in twins, *J. Hered.*, 1927, **28.**

the 30 seconds during which the stimulus was active. (It should be mentioned that in our experiments, as a rule, the action of the conditioned stimulus lasted 30 seconds, after which time in the case of a positive stimulus the latter was reinforced, while in the case of a negative stimulus no reinforcement was given. The number of drops of saliva given off in the course of these 30 seconds serves as a measure of the conditioned reflex.)

From the very first experiment pertaining to the *law of force* the difference between the twin sisters I proved to be sharply accentuated. The daily experiment consisted of four conditioned stimulations occasioned by the ringing of a bell. First, there were two feeble rings at an interval of 4 to 5 minutes—this is a period of time during which the action of the conditioned stimulation as well as that of the reinforcement gradually dies down and the child comes back to its ordinary state. Following the second feeble ring, also after a lapse of 4 to 5 minutes, a loud ring was given followed finally by another feeble ring. Comparison was made only of the conditioned secretion effected by the last three rings; the first ring—considered as introductory—was not taken into account.

The result of the first experiment, as expressed in the number of drops of conditioned secretion, was as follows (it is to be noted that a positive conditioned reflex on a feeble ring had already been formed):

	Feeble ring	*Loud ring*	*Feeble ring*
Tamara	1	1	5
Nina	6	34	34

This shows that Nina responded to a loud ring with an unusually large number of drops of conditioned secretion, while Tamara gave off but one drop.

The experiment was repeated in the same way thirty times, the results proving very different. It is not possible here to enter into details—these are given in Table 2. By summing up the results of all the thirty experiments and computing the mean number of drops given off in the course of 30 seconds, the following figures are obtained:

	Feeble ring	*Loud ring*	*Feeble ring*
Tamara	6.0	6.43	6.6
Nina	7.8	12.5	13.4

Tamara's reflexes, with few exceptions, did not correspond with the *law of force*—frequently a loud ring produced a decrease in the

TABLE 2. THE EFFECT OF WEAK AND STRONG INTENSITIES OF THE CONDITION STIMULUS
(The figures give the number of drops in course of 30 seconds.)

DATE 1934	FEEBLE RING		LOUD RING		FEEBLE RING	
	Tamara	Nina	Tamara	Nina	Tamara	Nina
24, V	1	7	1	34	5	34
26, V	6	15	5	8	2	18
27, V	4	14	1	23	7	15
29, V	2	9	4	40	6	15
2, VI	6	8	9	19	2	8
3, VI	1	2	5	22	3	22
5, VI	6	6	10	11	6	6
8, VI	4	1	1	0	5	3
10, VI	0	1	0	0	2	5
14, VI	10	3	5	17	7	5
15, VI	7	3	6	6	5	1
17, VI	3	2	7	3	4	2
19, VI	1	4	7	2	3	4
11, IX	4	8	2	4	8	2
13, IX	5	3	5	6	4	4
14, IX	6	8	5	3	6	8
29, IX	6	8	9	9	6	14
2, X	1	3	10	14	5	23
5, X	6	12	4	20	9	9
7, X	10	10	6	15	6	13
11, X	7	11	6	19	7	17
13, X	2	33	3	21	9	22
26, X	7	7	7	9	9	7
29, X	8	7	7	17	14	11
2, XI	20	8	8	9	5	7
11, XI	5	3	5	3	7	2
19, XI*	9	15	8	19	9	54
25, XI*	26	13	36	17	18	45
26, XI*	2	1	4	3	6	4
1, XII	5	11	7	12	13	22
TOTAL	180	236	193	385	198	402

reflex instead of an increase. In consequence, Tamara does not show any difference between the effects of the strong and the feeble stimuli, while in Nina the difference is very marked.

This difference between the twins must be recognized, not as a

casual occurrence, but as a more or less stable, already established, tendency in their mode of reflex responses.

This dissimilarity between the twins is presumably as characteristic of them as the one mentioned earlier relating to spontaneous secretion. It leads to the inference that the reflex intensity—one of the fundamental properties of the nervous system—may become distinctly different under the influence of comparatively small discrepancies existing in the environment, which is seemingly identical for both girls I.

Similar facts present themselves when the twins are studied with respect to inhibitory reflexes.

The following experiment is an example. Conditioned stimulation is produced by a metronome, rapid and slow rhythms alternating. If the rapid rhythm alone is reinforced, the child learns relatively quickly to distinguish these rhythms, the reinforced rhythm (200 beats per minute) causing it to produce a conditioned secretion, while in the case of the rhythm not reinforced (100 beats per minute) there will be no such response.

Such experiments with differentiation of the metronome rhythms were repeated with different variations scores of times. One of the experimental series is given here as illustration (Table 3). Each

TABLE 3. DISCRIMINATION EXPERIMENT

(+ = reinforced rhythm of metronome (200), — = non-reinforced rhythm (100); the figures represent the number of drops during 30".)

DATE	TAMARA		NINA	
	+	—	+	—
23, III, 1935	13	10	31	3
26, III	8	10	49	13
27, III	9	2	35	3
29, III	9	3	39	8
1, IV	23	4	33	4
4, IV	3	6	33	4
5, IV	25	9	40	5
7, IV	16	7	25	5
9, IV	10	2	36	6
10, IV	18	8	30	3
11, IV	15	7	45	3
13, IV	14	8	33	4
15, IV	30	7	50	4
19, IV	9	8	40	12
TOTAL	202	91	519	77
AVERAGE	14.3	6.5	37.0	5.5

figure represents the average of three positive and three negative stimulations.

We find that in these experiments the intensity of the positive reflex was considerably higher in Nina than in Tamara; it was on the average more than twice as great. On the other hand, the inhibitory reflex was nearly equal in both twins and, in addition, it was equally incomplete as in spite of the large number of experiments a full inhibition was never obtained. Normal children under similar conditions come to form a full differentiation, i.e., when subjected to an inhibitory stimulus, they do not produce any conditional secretion.

Thus, in the feeble response in the case of the inhibitory process, the twins proved to be largely, though not entirely, similar, Nina showing the inhibitory response more distinctly. In this case also, as in the experiments pertaining to the *law of force,* Nina's response was more distinct than Tamara's.

It is most interesting to note that both girls have proved to be incapable of coping with more intricate problems, such as responding to a system of stimuli or to a complex of three stimuli. The system used consisted of the following stimuli, for which conditioned reflexes had been previously established: red light, metronome (200), skin stimulus together with metronome (100; negative), metronome (200), metronome (100; negative), a loud ring, a feeble ring. This system has been applied eleven times, and yet the children have been unable to meet the situation. The complex of stimuli consisted of three differently colored electric bulbs, lighted one after the other, for a period of 10 seconds each. At the close of the experiment reinforcement was given. This complex has been applied ninety-five times, but only blurred results have been obtained.

The one-egg twins I, though presenting a number of points of similarity in the activity of their nervous system, such as in the similarity in rate of formation of conditioned reflexes, similarity in the unconditioned reflexes, defective inhibitory process, etc., are, in spite of the opinion frequently encountered in literature, far from "identical," though they may seem so at first sight.

Mention has already been made here of certain stable points of difference between the twins which may serve as a means of distinguishing the two girls. These include the greater spontaneous secretion in Tamara, Nina's considerably more intensive positive conditioned reflex, especially in relation to the strength of the stimulus, etc.

It is known that with time the differences in monozygotic twins

grow as a rule more marked. In this the principal role belongs presumably to the conditions of life. The cause of these differences between one-egg twins which represent the peculiarities that characterize their personality is evidently to be sought in the first place in the influences of the environment.

The delicate and exact methods of research that are at our disposal help us to fuller and deeper recognition of the difference—in its purely physiological expression—between the personalities of the twins. Thus in spite of the great typical likeness of the twins, we shall learn to distinguish a great many individual traits of their characters formed under the influence of environment. Probably a much larger relative role will have to be ascribed to environment than is allotted by those modern scientists who stress so greatly the importance of heredity.

We shall not endeavor to go deeper into the facts mentioned here or try to generalize them. This may be undertaken only after further experiments have been carried out on the twins I and on other pairs of twins—a work which is now in progress.

We should like to state, however, that the facts recorded suffice to demonstrate that the mode of investigation employed makes it possible to approach the problem of the genetics of the higher nervous activity at its more accessible points.

EUPHORIC AND DEPRESSED MOODS IN NORMAL SUBJECTS*

PART II

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This article is a report on the second half of an experimental study. Data on behavior differences found between euphoric and depressed moods and data on temporal patterns of euphoric and depressed moods were presented in the preceding article (Part I).[1]

The author is testing the hypothesis that mood changes in normal subjects are similar in kind to the changes in mood seen in abnormals. Therefore the experiments and scales used with the experimental group of twenty-eight college women dealt with functions or attitudes stated in the literature to be characteristic of depressed or elated abnormal subjects.

The previous article indicated that statistically significant differences are demonstrable with normal subjects in respect to: 1. Number of spontaneous remarks made during a standard interview. 2. Regression in thought (per cent of childhood memories among associations). 3. Speed of decision. 4. Expansive-retractive trends in writing area. 5. Speed of fluctuation of ambiguous figures.

In the present article the author proceeds to an analysis of the subjective aspects of euphoria and depression. The subjective correlates of mood were studied by having the subjects check their present feelings in respect to the feeling-tone scales presented on the following pages. Such assay of present feeling was made twice by each subject, once during an experimental period when the subject had reported herself to be in a depressed mood and again at a time when she considered herself to be in euphoric mood. The examina-

* The author wishes to acknowledge the assistance of Dr. Robert Choate Tryon and other psychologists of the staff of the University of California and of Dr. Lewis Madison Terman of Stanford University.

[1] *Char. & Person.*, 1937, **6**, 79-99.

tion into depressed mood preceded that into euphoric mood for fourteen subjects and followed it for the remaining fourteen subjects.

A. Subjective Correlates of Mood

Subjective Ratings

A purely behavioristic approach to the problem of mood seems to omit its essential nature, which is the subjective awareness of changing affect. In a highly socialized group, it seems doubtful if mood is always mirrored in objective behavior. Subjective assessment, therefore, seems indispensable for this problem. We have attempted to give such assessments more definition by using rating scales covering a number of aspects of feeling-tone. On our hypothesis that the normal-abnormal variation is a continuum, the experimenter turned to the abnormal field for various indicated emotional aspects of elation-depression. The variables chosen for self-rating were as follows.

Scale I. Physical Energy.—Motor acceleration is common in elation, and motor retardation is commonly seen in depression. The two extremes of a scale measuring the subject's self-estimation of "physical energy" were phrased as follows:

Superabundant vigor. Extreme zest for activity. Desire to "bound" rather than walk.

vs.

Extreme lassitude. Complete aversion to physical activity. Limbs seem too heavy for activity.

Scale II. Mental Energy.—A scale for mental energy was included, since negativistic, non-cooperative attitudes toward tasks are seen in many depressed patients. The fact that the distractability of elated patients often makes them poor workers even though the task is accepted cheerfully, and the obverse condition that a docile depressed subject makes a good worker, were considered as also having a bearing on this item. The extremes on this item were phrased as follows:

Very thought of mental exertion extremely distasteful perhaps even to nausea.

vs.

Pressing, eager ambition for learning. Flowing enthusiastic joy in mental effort.

Scale III. Self Confidence-Diffidence.—The delusion of grandeur often accompanying elated states and the sense of guilt and

anxieties accompanying depressions were taken as the basis of this item. The extremes were phrased as follows:

High sense of power and indomitable courage. Awareness of facile clicking efficiency. Feel that I can accomplish *anything* I set as goal.

vs.

Overwhelming sense of futility and inefficiency. Doubt of the calibre of my mentality. Feeling that I am a weakling. Tendency to extreme anxiety regarding the future.

Scale IV. Social Attitudes toward Others.—The indiscriminate expansive social attitude often seen in elated patients as against the avertive distrust often encountered in depressed states (though more often actively expressed in agitated depressions than in apathies) was taken as the basis for this item. The extremes were phrased as follows:

Extreme warmth of outgoing friendliness toward people, even toward persons usually disliked. Enthusiastic awareness of utter lovableness of friends.

vs.

Aversion to people generally, amounting even to annoyance with best friends. Acutely conscious of everyone's faults.

Scale V. Social Self-Feeling.—The glorification of the social ego, including expansion of the sex-power motif so often seen in elated patients, is the basis for one extreme of this scale. Its opposite is the debasement often seen in depressed persons. Ideas of extreme social inferiority or "unworthiness" are often accompanied by delusions of sexual inadequacies, the castration complex, etc. The extremes were phrased as follows:

Everyone seems especially cordial, realization that actually *everyone* likes me. Awareness of love and admiration of friends. Sense of fundamental charm and power as a woman.

vs.

Everyone seems to be unfriendly and against me, or at least to disapprove of me. No one loves me. I am essentially a failure socially.

Scale VI. Vocalization.—One extreme of this scale was derived from the very commonly observed tendency of elated patients to vocalize excessively. The opposite extreme is suggested by the tendency to silence, even to mutism, seen in depressions. The wording given was as follows:

Extreme pleasure in talking to anyone and everyone. Awareness of fluency and patness of my speech, with annoyance at interruption.

vs.

Extreme tendency to be silent; aversion to talking even to most intimate friends.

Scale VII. Emotional Excitability.—This scale was included with some misgivings. It is an attempt to mirror the apathetic states which most commonly accompany depression as against the emotional excitement usually seen in elation. The not infrequent occurrence of agitated depressions, however, made it seem likely that a large number of normal depressed moods might also involve an element of excitement. The extremes were phrased as follows:

Extreme indifference; nothing excites or depresses me; nothing seems to matter. Boredom with everything.

vs.

A great press of stirring things seem to be happening, and everything involves me emotionally. Tears or laughter or giggling come easily.

Scale VIII. Decisiveness.—An item was included which aimed to tap the fundamental differences in the expansion or retraction of the ego seen in manic-depressive reactions. This variable might be thought of as the degree of confidence an individual has in himself. The extremes for this scale were phrased:

Sense of clear sureness in decision. Security in decision since it represents "my best judgment." Tendency to defend decision against criticism.

vs.

Even unimportant decisions very difficult to make. Mind goes back and forth until one feels exhausted. Feeling of conflict persists after decision is made, and the unchosen looks desirable.

The experimenter assumed that if the check were placed at a remembered phrase, at the first interview, the result of an ideal of consistency would be likely to affect the assessment of feeling at the second experimental session. Therefore, only the extremes of the scales were defined. In order to discourage a possible tendency to mark all scales somewhat the same distance from the extreme, the pleasant extreme was reversed in page position in every other scale.

The general instructions given at the beginning of each rating session were as follows:

Now I shall ask you to rate yourself for today on energy, self-confidence, and several other things. The extremes on these blanks are defined so that you may be sure of the sort of trait we are asking you to rate. Smaller details of our description may not fit all individuals equally well.

The items of this section are obviously open to the effects of suggestion, since the subject first indicated the mood felt. The magnitude of the findings will, therefore, be subject to discount in

spite of the intelligent and critically-minded personnel of the subject group. To correct partially this effect, a caution was placed at the top of the sheet bearing the rating scale and was read in each case to the subject.

We do not know what other feelings accompany elation or depression. Please do not assume that the feelings we ask you to assay in yourself today are going to change along with mood. They may in some persons but not in others; some of them may change with your moods, some of them may not.

Results

The difference between means in euphoria and in depression was found to be significant for all scales used. The complete results are presented in Table 1.

TABLE 1

EMOTIONAL DIFFERENCES BETWEEN EUPHORIA AND DEPRESSION AS RATED ON SUBJECTIVE SCALES

Feeling assessed	Euphoric mean	Depressed mean	M. Diff.	σM.D.	Critical ratio
Physical energy	+1.75	—2.04	3.79	.52	7.21
Mental energy	+1.14	— .93	2.07	.58	3.58
Social confidence-diffidence	+2.57	— .82	3.39	.47	7.58
Social attitudes to others	+2.43	— .07	2.50	.46	5.39
Social self-feeling	+2.36	+ .39	1.96	.45	4.34
Talkative-silent desire	+2.61	— .50	3.11	.61	5.06
Emotional excitement-apathy	+2.50	+ .21	2.29	.83	2.76
Decisiveness	+2.54	—1.00	3.54	.69	5.12

Treatment of Subjective Analysis Scores.—In this section scores are self-ratings on scales of subjective feeling. The point of reference is automatically the self; and differences in scores are, therefore, in proportional form. Hence the difference method was considered applicable to these data.

Student's difference method, as outlined by Ezekiel, was used. This method deals with the distribution of differences and asks whether the average of these differences in score is significant when contrasted with the variation in individual differences. The critical ratio is yielded by the formula:

$$\frac{MD}{\sigma MD}$$

where MD is the mean of the distribution of differences and where σ MD is the standard error of the mean of differences. The standard error of the mean of differences is obtained by the formula: $\frac{\sigma}{\sqrt{n-1}}$

where σ is the standard deviation of the distribution of differences.

Student's method, although different in approach, represents essentially the same criterion of a true difference as does the more usual formula:

$$\frac{D}{\sigma D}$$

where the standard error of the difference is obtained by the formula:

$$\sigma D = \sqrt{\sigma M_1^2 + \sigma M_2^2 - 2r_{12}\sigma_1\sigma_2}$$

and where D represents the difference between the means.

Student's method is preferred, however, for data of this nature where the same (or properly matched) groups are involved. Not only is the mathematical treatment simpler, but also, as Ezekiel has shown, Student's method gives a more exact measure of the reliability than does the ordinary formula.

The Annoyance Inventory

Harsh's two-form annoyance inventory[2] was also administered to the subjects with the hope of throwing further light on the nature of subjective concomitants of mood. The use of a personality test for mood investigation has been contra-indicated by a preliminary study,[3] but the fact that Harsh's test had two forms made it tempting, since the memory factor is thereby controlled. Half of the thirty subjects took form one when in euphoric mood and form two in depression, while the order was reversed with the other half of the subjects.

The following general instruction was given:

> We believe that the types of things which are annoying to a person probably change as mood changes. Here are lists of kinds of things at times annoying. Indicate what kinds would annoy you at this time.

The results are of considerable interest, although differences shown are very limited. The inventory includes a large number of causes of annoyance which are divided into categories on the basis of the type, such as sensory annoyances, derogatory attitude, etc. Only one category in the inventory showed a difference between means which approaches significance. This is category 6 and deals with reactions to the "inconsiderateness of others." Examples of the items included are:

To have to wait for a person when we are late for an engagement.
To have an uninvited person enter my room without knocking.
To have cigarette smoke blown in my face.
To have a person crowd in line ahead of me.

Such things tend to be rated more annoying when the subjects are depressed. The critical ratio is 2.43.

Apparently category 6 yields differences with mood chiefly because its items are ambiguous of interpretation—that is, the subjects may interpret them as having self-reference or as fortuitous. De-

[2] C. M. Harsh, Three applications of cluster analysis to an annoyance study, *Psychol. Bull.*, 1936, **33**, 773.—Abstract.

[3] W. B. Johnson, Effect of mood on personality traits as measured by Bernreuter, *J. Soc. Psychol.*, 1934, **5**, 515-522.

pressed mood selects interpretation of a self-referent, derogatory, or persecutory nature. This view is strengthened by the fact that category 9, which deals with clear-cut "derogatory behavior towards oneself or one's belongings," yields the smallest difference between euphoric and depressed means found in any category.

Annoyance scores showed the presence of a relatively large group (twelve), who showed more annoyance throughout all categories when in depressed mood. Also there was present a smaller group (six), who showed less annoyance throughout all categories when in depressed mood. The personnel of these groups, however, showed no more than chance overlapping with minority groups on other subjective measures, such as the group reporting excited depressions.

Resumé of Subjective Analysis

The general patterns of depression reported by our subjects may be pictured somewhat as follows: the feeling of physical energy is definitely reduced in almost all instances of depression. Only one individual out of twenty-eight reported a depressed period without a feeling of reduced physical energy. Loss of confidence in one's own powers and in one's own capacity is almost universally felt to a pronounced degree. Only two instances were found in which individuals did not report this part of the general pattern in spite of any compensatory or defensive mechanisms which one might expect to be operative. A lessened sense of outgoing friendliness toward others, a generalized feeling of indecision, and a tendency to talk less are almost as generally felt in depression. Only three deviations from this portion of the pattern are reported.

The above variables yield the largest differences. Thus, the common pattern of feeling in depression is of physical lassitude, diffidence, indecisiveness, withdrawal from others, and a tendency to silence.

Feeling regarding the attitudes of others toward oneself shows somewhat less general agreement. Most persons feel rather strongly that others are less friendly toward them when they themselves are depressed (the critical ratio is 4.33). Six instances of depression, however, are reported in which the reverse is felt; and since the number constitutes more than one-fifth of our subjects, it would seem that interpretation should be cautious here. Because of the factors of suggestion previously mentioned, the results of this section must be handled with discretion. The item is one which would

seem logically to be open to compensatory intellectualization or to mechanisms for defense of the weakened ego. On the other hand, there may very well be operating here personality differences which cause an actual difference in the responses of others to the personalities involved. Depression in some personalities may call out unusually sympathetic responses in others which more than outweigh any tendency to interpret the responses as unsympathetic. There is, however, evidence of a strong trend for any inconsiderateness of others to be more annoying when one is depressed.

Mental energy is usually reported as lessened in depression; yet almost a fifth of our subjects reported a feeling of increased pleasure in mental effort at that time. It seems altogether probable, however, that the tendencies toward withdrawal from social and physical activities might produce this effect, even though mental energy were somewhat lessened.

Emotional apathy is usually a component of depression, but the critical ratio in this case is smaller than for any of the other scales and nine out of twenty-eight subjects reported increased excitement rather than apathy. A number of clinical notations were recorded which are pertinent here. Subjects in discussing the nature of their depressions, usually said such things as "I feel apathetic," or "sort of hopeless," but sometimes "I feel jittery," or "I'm excited as though something bad were about to happen."

It seems a defensible hypothesis that there are here involved different types of depression. One is the more usual apathetic depression; the other analogous to the agitated depressions of psychotics. These findings will be further considered in the section on the nature of mood.

B. The Nature of Mood

Any final theory regarding the nature of mood would at the present stage of our knowledge be premature, and none has here been attempted. It seems desirable, however, to relate the findings of the present study to some of the theories which have been formulated by others and to suggest certain tentative interpretations.

Previous Theories

Fisher and Marrow (3), basing their conclusions on the lengthened association time which they found in extreme moods, have interpreted such extremes as due to a mental set which acts to inhibit all ideational responses except those belonging to certain categories.

It is this selective function, they believe, which brings about the lengthened reaction time. It may be pointed out, however, that Matzkevich (8), using the same technique upon larger numbers, has found that euphoria shortens rather than lengthens reaction time.

The association data of the present study were scored to afford a further check on the Fisher and Marrow (3) inhibition theory. When all scores made in extremes of mood (euphoric and depressed extremes thrown together) were contrasted with scores made in moods rated nearer normal, the difference approximated zero. This is the expectation if, as found by Hartenstein (5) and others (see Studman, 11), reaction time is less than average in euphoria. Even if Fisher's and Marrow's data were in keeping with that of other experimenters, their method (using entirely a post-hypnotic technique) could not, in the absence of definite proof, be accepted as explanatory of natural changes. Indeed, the available evidence as to the effect of biochemical factors upon mood would imply that probably hypnosis cannot duplicate natural mood conditions.

Hersey (6) sums up his conclusions on the nature of mood by saying that mood is "emotional resistance." This phrase is less pretentious in that it is descriptive rather than explanatory. It is, however, not adequate even on the descriptive level. Resistance is a passive term, while euphoria has been consistently found to be a condition of heightened activity. Also emotional resistance seems to imply that the organism is resisting what Hersey has called the "buffets of misfortune"—in other words, environmental agencies. Our own data, on the contrary, indicate (as will later be shown) that important factors in mood rhythm are within the individual. Hersey himself recognizes this. He says in part, "Almost never, in spite of all the buffets of misfortune, in spite of difficulties at home, in spite of great pleasure and unusual success, does the length of any particular span depart more than one week either way from the usual span length" (**6,** 347).

The present author is inclined to believe that if any generalized descriptive phrase is desirable, the phrase "emotional energy" would seem preferable to that which Hersey suggests. A better procedure, however, would seem to consist in simply describing and classifying our findings and presenting tentative suggestions as to their relation to the data of others bearing on the nature of mood. Caution and the tentative attitude must be understood to attach to the theoretical discussion throughout.

The Physiological and Biochemical Nature of Mood

We here present a tentative hypothesis as follows: mood is largely dependent upon neuromuscular tonus, the degree of which is due to the volume of afferent excitation from the proprioceptors,[4] which in turn is due to biochemical changes. These biochemical changes occur in somewhat rhythmic fashion with the gradual building up of chemical balances and subsequent change in qualitative effects.

In so far as there is evidence of directional trends in mood which are divorced from directional trends in environmental factors, we have a strong suggestion of biochemical and physiological causation. In spite of overlay of emotional response to irregularly varying environmental situations a certain amount of such directional mood effect is evident in our mood curves.

Speculation as to the nature of the biochemical changes underlying mood and the relation of the roles played by such possible factors as the acid base balance, the calcium phosphorus balance, or the levels of blood bromine are beyond the scope of this study. The large and confusingly contradictory body of evidence being accumulated on physical correlates in the functional psychoses suggests a complex basis. Doubtless much of the confusion in this field is due to the fact that it is impossible to distinguish causal condition from conditions which represent the effects of the psychosis or from conditions which represent a partial compensation by bodily forces. Further reference will be made to this matter in the concluding section of this chapter.

Our hypothesis has posited that biochemical factors become effective by way of neuromuscular tonus acting through changes in the volume of afferent impulses from proprioceptors to the higher centers. We may think of heightened irritability of the general neuromuscular background as extending to more strictly psychological facilitation if we consider that through afferent connections with proprioceptive fields the postural substrate becomes the chief contributor to the vigilance of cortical neurones. The intimate connection between psychological performance and tissues under the dominance of the tonic reaction system is clearly indicated by the work of Clites (2), of Abel (1), and of Tuttle (12).

As evidence in support of our tentative theory, we note that throughout our behaviorial items all scores indicate a facilitation of

[4] No doubt interoceptors would be found to play a significant role if we could measure their effects.

function with euphoria as against depression. The only measures greater in depression are those of fluctuation of ambiguous figures and for percentage of childhood memories. The slower rate of perceptual fluctuation in euphoria may be thought of as a facilitation if we accept a current physiological explanation of this phenomenon to the effect that slower fluctuation indicates a facilitation in the power of the organism to hold one pattern of neural excitement in the presence of a competing pattern. This ability to hold the dominance of the perception is said to be conditioned by the tonus of the neuromuscular background. The greater number of childhood memories in depression may be dismissed as not contrary to the hypothesis, since the total number of associations tends to be greater in euphoria, and the change in ratio of childhood associations is simply evidence of the regressive quality of thought in depression.

Relation of Mood to the Mechanism of Sleep

A number of lines of experimental evidence converge to imply that interesting cross-connections exist between the phenomena which seem basic in mood and those which are thought basic in sleep. Experimental findings to date make the nature of the relationship an obscure one. Hersey (6) has shown that it is not direct by using a rigorous sleepfast on a limited number of subjects. The mood rhythms of these subjects appeared relatively undisturbed. Both his data and our own, however, indicate that the quality of sleep does tend to vary with mood; and other lines of investigation, including ordinary clinical observation in the abnormal field, appear to link these phenomena in various ways. Myerson (9) has found that benzedrine, aside from relieving depression, completely abolishes both narcolepsy and normal sleep for the duration of the effect of the drug.

Our hypothesis regarding the physiological basis of mood is strongly akin to Kleitmann's hypothesis regarding the basis of sleep. He looks upon sleep as dependent upon a decrease in the number of afferent impulses to the sensorium, especially proprioceptive impulses which depend upon the degree of muscle tonus maintained. The way, or ways, in which this decrease in the number of afferent impulses to the sensorium, especially from the proprioceptors, is brought about is a debated question. There is evidence, however, notably by Hess, that a center mediating such control exists in the medulla oblongata. This may be pertinent to Zondek's (13) recent finding relative to the levels of blood bromine.

Zondek has found that these levels in manic depressives vary rather significantly from those in schizophrenics. He finds, further, by using dogs that bromine appears to be differently distributed during sleep than during waking, with a concentration of bromides in the medulla oblongata during sleep. Variations in the activity of a mechanism of central inhibition might account for excited depressions, for George's (4) findings on the effects of drugs on perceptual fluctuation, for the reaction of Pavlov's (10) inert animals to bromine and for Landis's (7) finding that cerea flexibility disappears in sleep.

Relation of Mood to Environmental Factors

The relationship between the individual's mood and his milieu appears to be a much looser one than is commonly supposed. This statement, of course, does not imply that emotional response to environmental situations is meagre. These emotional responses, however, are thought of by the author as superimposed upon mood, as largely conditioned by mood, and as influencing mood relatively little unless of such intensity or duration as to affect body chemistry. Evidence for such a point of view is as follows:

Hersey (6) has gone extensively into clinical data regarding environmental situations experienced by his subjects during the period of his study. He also experimented with a smaller group by putting them under severe physical strain through loss of sleep. His conclusions on environmental effects are that the individual's "relation to environment is seemingly unable to prevent the rhythmic movement or to act as the explanation of its appearance. It may (1) raise or lower individual weeks out of line, (2) raise or lower the value of the entire periodic movement, or (3) shorten or increase the length of individual spans *within the limits of* a person's normal variability, though this last power is not so clearly evident as the two previously mentioned items" (p. 361).

In our own data, such environmental stimuli as are common to the group or to any large portion of it, appear to have little effect on mood.[5] In the composite graph such variations as are due to individual biochemistry and particularized emotional response in as far as they are not synchronized have presumably cancelled out. There should remain the response to common evironmental factors such as social occasions and weather factors. Apparently little common direction of influence on mood is effected by such variables, since the composite graph approximates a straight line.

[5] See Part I, pp. 84 f. of this study.

The notion of the organism responding in mood more largely to internal than to environmental factors is well established in regard to abnormals but is often objected to when applied to normals. Obviously it is less closely applicable to normals, since many abnormals show almost complete inaccessibility to environmental stimuli to the emotions. This objection cannot be regarded as negating the thesis that normal response to the internal factors is of relatively greater weight than is commonly supposed. There is evidence that there exists a strong tendency to rationalize our moods, or as Hersey (6) expressed it, "to pin them on" appropriate environmental happenings. Some evidence bearing upon this point was gleaned from the present study. At the end of each experimental session our subject was asked to indicate "why" she felt elated or depressed.

The specific instruction was as follows:

> Because I am dealing with university women I am going to get your opinion as to how the mood you now report arose. It might be in any of three ways, as I see it. I will tell you these three ways, and I want you to tell me if you can if one of them definitely fits this particular mood of yours. If you just aren't sure, I'm depending on you to say that you are not.
>
> These are three ways your mood may have come:
>
> 1. Special events have taken place since last——— which were not true before that, and these things chiefly made you feel as you do.
> 2. More generalized facts and attitudes in your life which you got to thinking about are the causes of your mood.
> 3. Perhaps due to some subtle physiological change—but at least not seeming to really be caused by any particular thing in the environment.

Only seven out of the fifty-eight moods discussed failed to be assigned to definite environmental stimuli. A few individuals, while assigning environmental causes, did indicate a certain amount of auto-criticism by statements such as "But I think I should have felt 'high' anyway" or "I think of these things afterward, but I don't think they really caused it." In general, however, even the most trivial or illogical "causes" were assigned with assurance. In one case the cause of a markedly depressed rating was said to be that "nothing exciting happens." It was often possible to throw doubt upon validity of these "causes" by ascertaining the time at which the subject became aware of the incident given as causal and subsequently by checking the subject's mood log. In at least ten cases a mood of contrary affect had intervened between the occurrence of the incident cited as causal and the mood said to have been caused thereby. Our data on the Harsh annoyance inventory add further evidence in that incidents are selectively interpreted to form causes in tune with current mood.

The tendency for reaction to be determined by the current set may be thought of as having an underlying physiological basis even at the lowest level of response, since it is recognized that of the wide variety of transitory exteroceptive impulses playing over a motoneurone field only those impulses will cause overt response which fit in timing, phase, and direction with the prevalent pattern of proprioceptive impulses.

Relation of Mood to the Functional Psychoses: A Suggestion for Research

The subjective aspects of normal depression and of euphoria appear from our findings to fall largely under some such category as the expansive-retractive trends of the ego. In euphoria the will-to-power is highly manifest. The individual feels important and stimulating, usually reacting with a benign expansiveness toward others. Orientation is toward the present and the future. Behavior in euphoria shows a heightened tempo of motor and psycho-motor reaction. The individual is more expressive, and random thought is more readily vocalized. The manifestation of expansive and aggressive trends in the ego are reflected in heightened confidence in one's own judgments and in the tendency to underestimate difficulties and distances.

In depression, on the contrary, regression is in the saddle. The orientation of the subject is more largely toward the past. There is an active tendency toward encystment of the personality. This is more than Janet's "fear of action"; it is a will to negation of power. The subject takes a kind of *Schadenfreude* in denying any power of the ego. He takes satisfaction in interpreting interaction with the milieu as active affront against a passive self—an interpretation which at once supports and rationalizes the urge to withdraw from all contact. Behavior mirrors the tendency toward encystment in that responses are slower and motor reactions close-held.

The above descriptions of normal euphoria and depression are taken directly from those experiments of our study which are found to be statistically reliable. These descriptions might serve almost equally well as descriptions of the most usual types of abnormal elation and depression. The evidence of the present study throughout points strongly to the conclusion that the variations in behavior and feeling found in normal mood are similar in kind to variations in behavior and feeling found in the so-called functional psychoses and

that a continuum exists from normal to abnormal. If this conclusion should be confirmed by further investigation, then an adequate description or explanation of normal mood changes would go far to describe or explain the nature of abnormal variations also. Although it is obvious that we are as yet very far from a point where an adequate description or explanation is possible, an important approach to research with the psychoses may lie in the examination of normal mood variations. It has been pointed out that research into the biochemical and physiological causes of the functional psychoses is greatly confused by the presence of conditions which are probably the result of the psychoses or which represent adjustment or compensatory efforts on the part of the organism. If the physical correlates of normal mood were more closely examined and looked upon as a point of departure, it seems possible that some of this type of confusion might be eliminated. Even small correlates with normal mood changes might be indicative of the nature of the more fundamental changes represented by the psychoses.

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THE CREATIVE PSYCHOLOGY OF CARL MARIA VON WEBER*

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When all is said and done, the most authentic and convincing record of a composer's evolution is to be found in his scores. As Weber said in a letter to Lichtenstein: "I can write nothing about my works. Hear them played! In my music you will find myself."

The overlords of music have heard sounds which never could and never can be uttered by any orchestra. Those black notes seemed to them but very pale and imperfect indications of what originally had been conjured forth in imagination. Musical notation, although a veritable tribute to human ingenuity, offers untold barriers and stumbling blocks to unreserved expression. The marvel is that there have been indited such hints as we do possess of those mystical, splendorous phantasms which, like tonal Northern Lights, flickered of yore within the men of genius.

> Again ye come, ye hovering Forms! I find ye,
> As early to my clouded sight ye shone!
> Shall I attempt, this once, to seize and bind ye?
> Still o'er my heart is that illusion thrown?
> Ye crowd more near! Then, be the reign assigned ye,
> And sway me from your misty, shadowy zone!

To discover that a composer utilized such and such imaginal processes is undoubtedly a valuable contribution to psychological knowledge. But what sort of impulses and emotions activated these processes so that we have today the *Eroica Symphony, Der Freischütz, Tristan?*

In the last analysis, musical structure is a fluid one whose crucial dimension is of the temporal order. Its origins are not to

* This is an adaptation of a section belonging to a volume now in preparation entitled *The psychology of musical composition as derived from historical evidences,* wherein case studies of seventeen great composers furnish the foundation for an attack on the music-creative problem.

be sought in the realm of external objects, but within—*autochthonous,* as we may say. This is not to deny that the outer world functions as a stimulating agent in bringing to a blaze the creative tonal fires; but the fallacy must be avoided of identifying—as has so often been done—the environmental floodgates with the musical reservoir.

The problem of the psychology of musical composition finally reduces itself to this: In what manner, and by virtue of what mechanisms, does the tonal libido obtain release for its manifold energies? As to the *creative moment,* this, as Tschaikowsky said, "is an inscrutable mystery."

What, now, was Weber as man and artist, and what were the forces that generated him?[1]

An especially intense outburst of emotion once led Carl Maria to write down his inmost thoughts, so vehemently charged with regret and disgust, in these words: "From the hour of my birth the path of my life assumed a very different aspect from that of other men. I cannot revel in the remembrance of a gay, frolicsome childhood; no uncontrolled youth gladdened me; still young in years I am old in experience; . . . In short, misery is the lot of man; never attaining to perfection, always discontented, at war with himself; unstable, yet ever moving on, devoid of strength, volition, and repose; the fleeting impressions on his mind vanishing as soon as made, of which these utterances from the depths of my heart are proofs."

Weber would seem to represent the culmination of a long line of family development. He came of a stock that showed a veritable passion for music and the theater. Love of the stage often assumed the proportions of a mania, and led many of his forebears, as the composer's son Max has told us, "to sacrifice position, fortune, all, in obedience to its impulses." From the middle of the sixteenth century, when the earliest official records of the family appear, down to Carl Maria's gravely psychopathic father, Franz Anton, there is a consistent history of fanatical devotion to music and the drama. It is interesting to remark, in passing, that Franz Anton's brother became the father-in-law of Mozart; thus, Carl Maria and Mozart were cousins by marriage.

The brilliant, erratic, wandering, hopelessly unstable Franz was

[1] The chief references for the present study are: Baron Max Maria von Weber, *Carl Maria von Weber: the life of an artist* (English trans. by J. Palgrave Simpson, 2 vols., London, 1865) and Sir Julius Benedict, *Weber* (London, 1899).

obsessed by the ambition to father a *Wunderkind;* actuated by the case of Mozart, he made every effort to bring into the open whatever musical talent his children might possess. For instance, he went to Vienna in 1784, where he placed his two elder sons under the tutelage of Joseph Haydn. While there, he met and married his second wife, a sixteen-year-old girl; she became the mother of the composer.

The earliest contacts and experiences of the small Carl Maria had to do with the stage; shortly after his birth the father fell victim to another violent attack of "stage fever" and organized "Weber's Company of Comedians." In this nomadic troupe the boy got his first taste of life. Congenitally lame, of poor health, "his woods, his meadows, and his gardens, were daubed on canvas: a painted palace was his street. His boyhood's mimic fights were fought, not with sticks cut from the forest bush, but with silvered swords and cardboard shields, with which the actors, as heroes or robbers, fought out their mimic fights upon the stage at night. It was not on the hill-side, beneath the air of heaven, that little Carl Maria stormed the imaginary fortress with his playmates. . . . Orchestra and stage arrangements were familiar to him before the first lessons of his primer—half understood theatrical intrigues his first glimpses of life."

It can scarcely be matter for wonder that, with this background, Weber's acquaintance with theatrical devices and mechanisms should have become second nature to him. Nor is it surprising to learn that, in the course of his intimate association with the stage, he passed through numerous love adventures, with many attendant complications.

He was a strange medley of introvertive and extrovertive traits, of deepest depression and manic exhilaration. An organizer of ability, he showed unusual capacity for work, and could keep on the jump from early morning till late at night when engaged in the preparation of an operatic production.

Of inferior physique, Weber nevertheless had much charm for women. Like his paranoid father, he loved social activity and change; it is easy to see that this was a means through which he could find respite from a constant undercurrent of distinctly *morbid* depression. Beethoven, reading the score of the *Freischütz,* struck it with his fist, exclaiming: "I never could have believed it of the poor weak little manikin."

During his less than forty years of life, he fought against the shortcomings of a frail body which succumbed to pulmonary tuberculosis. Exceedingly subject to spells of rage, hyper-excitable, he could also be most forgiving and charitable. Witness the instance of the dishonest servant who, having done the composer so much harm, subsequently applied to him for assistance, and was not turned away. His health was easily affected by newspaper criticism—abnormally so. However, Carl Maria was a stern and uncompromising analyzer of his own works, and saw the best he could in those of others. Once he said: "If I find any truth in the sharp criticisms I receive, I mark it in the tablets of my brain, and let all the rest go to the winds. . . . My whole life through I have owed much to the hostility of others, inasmuch as it has always been my best spur to excellence."

Sir Julius Benedict, Weber's pupil, has performed an inestimable service for psychology in recording his observations on the master's creative procedure. He relates: "I had the happiness to spend one of the most interesting periods of my life with him and his family. Watching the progress of his *Euryanthe* from the first note to its completion, I had the opportunity of observing his system of composing. Many a time might he be seen early in the morning, some closely written pages in his hand, which he stood still to read, and then wandered on through forest and glen muttering to himself. He was learning by heart the words of *Euryanthe,* which he studied until he made them a portion of himself, his own creation, as it were. His genius would sometimes lie dormant during his frequent repetition of the words, and then the idea of a whole musical piece would flash upon his mind, like the bursting of light into darkness. It would then remain there uneffaced, gradually assuming a perfect shape, and not till this process was attained would he put it down on paper. His first transcriptions were generally penned on the return from his solitary walks. He then noted down the voices fully, and only marked here and there the harmonies or the places where particular instruments were to be introduced. Sometimes he indicated by signs, known only to himself, his most characteristic orchestral effects; then he would play to his wife or to me, from these incomplete sketches, the most striking pieces of the opera, invariably in the form they afterwards maintained. The whole was already so thoroughly developed in his brain that his instrumentation was little more than the labour of a copyist;

and the notes flowed to his pen with the marks of all the shading of expression, as if copper-plated on the paper. By this peculiar mental process the large quantity of work which he was able to accomplish in a brief period can be explained. The scoring of the opera of *Euryanthe* from his sketches occupied only sixty days."

We are fortunate in that Benedict noted down the nature of the general method followed by Weber in composing; otherwise we would have but little information on the subject. It is most instructive to mark how, in Weber's diary, which was kept almost complete over the sixteen years from 1810 to within three days of his death, "domestic details and accounts are to be found in it in profusion." (Like Beethoven's letters.) "But even the greatest events of his own life the composer mentions in this record in but brief and scanty lines."

An early riser, it was Weber's custom to make the first transcription of his ideas immediately after breakfast, as he stood at his desk. The elaboration and instrumentation were undertaken in the evening. The preliminary sketches were so incomplete that neither his friend Meyerbeer, for all his vast experience, nor Marschner, with his similarity of feeling to Carl Maria's, was ever able to decipher the skeleton scores of the *Three Pintos* so as to finish the work, although both had heard Weber play considerable portions of the opera.

Notwithstanding that his compositions were always so carefully prepared mentally before the formal writing took place, it must not be supposed that he shirked the labor of revision. Frequently he spent many days upon the alterations of a score, especially after seeing faults laid bare by rehearsal or first performance. Thus, the finale of the second act of *Euryanthe* was three times remodeled; the overture was modified by the addition of the "spectral passages." Upon these revisions the same preciseness was bestowed as on the wonderful "copperplated scores."

Concerning Weber's calligraphy, it should be recalled that he had exceptional talent as a maker of lithographic plates. His father had been associated with Senefelder, the inventor of lithography, and during his early years Carl Maria had acquired skill in this art. He states in his Autobiography that he also mastered painting in oils, miniature painting, and pastel work.

Not only do his finished scores testify to the extreme beauty of his handwriting, but also to remarkable powers of concentration.

The revised manuscript of the *Freischütz,* presented by Caroline to the Royal Berlin Library, *does not contain a single erasure or correction of any kind!*

Max von Weber has collected data on the composer's musical psychology: "Weber was much longer employed on the composition of his *Der Freischütz* than on that of any other of his operas. The very day may be marked (the 23rd February 1817) when the first act of the opera reached him, and on reading it over, he felt, as he expressed it, 'a spring of melody bubbling up within him.' From the beginning of his mental work on it, which never ceased till the 2d July, the first day that he wrote down a note of it, an interval of more than four months took place. There is not a single piece of music in it that he did not turn over twenty times in his mind, until he so felt it that he could say, 'That's it!' and then he wrote it down rapidly in a firm clear hand, almost without altering a note. Thus in none of his works does the peculiar specialty of the style and manner of his creation appear so markedly as in this one. He may be said to have been always composing. The world appeared to him a world of tones. Colour, form, space, time were transformed, by a mysterious process of his inward man, into sounds. Out of the strangest and most unharmonious noises his ear sucked in the most original and striking effects. Strange to say, lines and forms seem to have called forth melodies within him, as sounds gave rise to harmonies. His musical ideas, he was wont to say, came thickest upon him when the sight of outward objects was accompanied by the rolling of carriage-wheels. Landscapes were symphonies to his ears; and melodies sprang up from every rise or fall of the road, from every trembling brook, from every waving field of corn; whilst the sound of the wheels supplied the richest harmonies. Thus certain drives or walks were involuntarily mixed up in his mind with such or such musical ideas. Whenever any spot recurred to his memory, it was combined with the recollection of the melody it had inspired. But, happy as might be the ideas thus elicited by outward objects, Weber was slow to write them down. Experience had taught him that such musical inspirations might, like poetical improvisations, strike upon the ear with brilliant and startling effect, yet fall upon the paper dead and cold, like shooting-stars. Weber, however, was no lavish spendthrift of his ideas. Portions of these fleeting musical apparitions, to which he assigned no greater value, and which he considered unworthy of being stored up, he would re-

produce in his inimitable improvisations on the piano; and, as he played, he would unroll before his mind's eye the landscape panorama whence the musical thoughts had sprung.

"But it must not be supposed, at the same time, that the nature of the outward objects always elicited analogous feelings. Sublime mountain scenery, by some strange chain of thought, or perhaps contrasting feeling, might give birth to a droll capriccio,—a joyous sunrise to a melancholy adagio,—a grotesque object to a grave motive. After this fashion, the *Laughing Chorus* of the first act of *Der Freischütz* owed its origin to the impression made upon the composer by the intolerably false intoning of the responses of a litany of some old women, during a sleepy afternoon service in the Pillnitz chapel. The music of the *Wolf's Glen* was conceived one morning as he drove to Pillnitz in a heavy fog, the changeful masses of which swept in multitudinous forms around his carriage. The magnificent march in *Oberon,* . . . also owed its existence to a still more singular apparition. Weber was accustomed, when performances took place at the Linkesches Bad, to walk out after dinner and take his coffee there in the garden by the Elbe. One day a heavy rain had come on during the walk, to the capellmeister's infinite disgust. He was unusually silent and morose. When he reached the garden, all the guests had been driven away by the rain, and the waiters had heaped chairs and tables one upon the other, with their legs sprawling in the air. The capellmeister stood for a time, with his hands folded behind him, gazing at the grotesque groupings of these distracted-looking objects. All of a sudden he called to young Roth, the clarionette player, who had been the companion of his walk, 'Look here,' he said, 'does not that look exactly like a great triumphal march? Donnerwetter! What chords there are for the trumpets! I can use that! I can use that!' He had just then been asked to compose a march for Gehe's tragedy of *Henry the Fourth.* Immediately on reaching home, after the theatre, Weber wrote down his singular inspiration, at first only for brass instruments. It was afterwards turned to account, and arranged for the orchestra in *Oberon.*"

The observation has been made how the landscape, the fog, the grotesque groupings of inanimate objects, lines and forms in general—especially when accompanied by the sound of carriage wheels —assisted and gave direction to Weber's tonal consciousness. The circumstances underlying the creation of the march in *Oberon,* for

instance, would seem best interpreted in terms of tonal visuo-motor *Einfühlung:* a synesthesic group of processes, to all intents and purposes.

Weber is a clear case of the intimate association between eidetic imagery in the two modalities of audition and vision. The following is most significant: "The first note of *Der Freischütz* which Weber ever wrote down belonged to the duet between Aennchen and Agathe, in the second act. As Weber himself has frequently declared, he not only saw his Caroline before him, carrying out all his artistic intentions in a part which so thoroughly accorded with her peculiar talents; but he could hear her singing every note of the music, as she would sit studying at the piano, now shaking her head over some passage, now smiling pleasantly over some others, until these visions of his brain dictated all the effects of his composition." His feat in conducting the *Zauberflöte* without score during an emergency, and going through the pantomine of turning the pages at the proper places, is another example pointing to the fact of his *Eidetische Anlage.* We must not, however, make the serious mistake of supposing that this *Anlage* was narrowly limited to the visual field; for in such great composers as Mozart, Schubert, Weber, Schumann, and Tschaikowsky—to mention just a few preeminent cases—one is constrained to regard their *auditory* experiences as genuinely *eidetic.*

In his unfinished romantic novel, *Künstlerleben,* Weber makes a very important statement: "With me everything must conform to musical shapes. The sight of a stretch of country is to me the performance of a piece of music. I sense the whole, without dwelling on the details of which it is composed; in short, the scene, curiously enough, moves in time. It is a *successive* pleasure."[2] *Motion is the crux.* There is plainly evident in Weber a highly organized *kinesthetic* component. Like Mozart, he was an excellent dancer, in spite of his lameness. He regarded the act of walking as tremendously facilitating to the tonal stream. He derived much excitement from driving a fast team of horses. As we have noticed, the sound of revolving wheels and the rapid pace along the road brought out musical materials in abundance. His music reflects the powerfully kinesthetic aspect: almost any page forcefully demonstrates this. Examples are so brilliant and fascinating that were we to begin citing them, the temptation to draw up a long list might be hard to withstand.

[2] G. Abraham, Weber as novelist and critic. *Musical Quarterly,* 1934, **20,** 29.

The *Künstlerleben* is really a spiritual autobiography, quite indispensable to the better understanding of Weber. It is by no means, however, an autobiography in the ordinary sense; "though some circumstances in the life of the composer-hero, variously referred to as 'Felix' and 'A', are identical with those of Weber's own (for instance, the early loss of his mother, his father's laxness, and his life at court). . . . If Felix is not Weber, his thoughts and feelings are clearly Weber's. The opening chapter, for example, gives us a graphic description of a state of mind which Weber, himself, must have often experienced: the torment of the creative artist who for the time being *cannot* create."[3] This description reads: "Vague longing, stretching out into a dim distance where one hopes to find alleviation, without being able to say exactly *how;* painful excitement of inward power on which consciousness of a high ideal lays heavy fetters, fetters from which one sometimes gives up all hope of release; irresistibly violent impulses to work, calling up giant pictures of would-be accomplishment which immediately dissolve into a pure void of thought. . . ."[4]

Felix comments on those unfortunates who are ever living in the grip of powerful emotions: "I flew to music and hoped, driven by these passions—inflamed to fever heat, indeed—to be able to express my feeling in tones; but in vain. My ideas were in a state of chaos. The abundance of my emotion consumed itself. So that I proved the falsehood of the usual remark that the merry compose well merrily and the sad sadly. Whoever repeats that remark does not know mankind. Profound emotion is *felt,* but not expressed *(Alles Tiefempfundene fühlt sich, aber sagt sich nicht).* The creative impulse must be a fundamental element of that tranquil mood which is capable, so to speak, of leaving the individual Ego entirely and passing over to the other, the creative."[5]

Weber expounds the duality of the artist in the dialogue between Felix and Dihl (his foil):

Dihl: "Now I can't understand that, and I have long wanted to ask you how you can carry on a conversation and work at the same time."

Felix: "Yes, I could almost believe with Plato that men—or at least I—have two souls; at any rate, I evidently have two things in me, of which one is trained to deal with sounds and the other with conversation. For I find it quite easy to talk connectedly of entirely different matters and yet with my whole soul, quite occupied with

[3] *Ibid.,* p. 28. [4] *Ibid.,* p. 29. [5] *Ibid.,* p. 33.

my subject, to form musical ideas and compose. Yet I must admit that it over-fatigues me and that at such times I am like one hypnotised, since my tongue speaks of things concerning which I really know and think nothing."

Dihl: "And do you find that to be the same with all kinds of composition?"

Felix: "No, not quite. In the so-called really strict forms, such as fugues, I find it more difficult to do anything else at the same time."[6]

Nature is, says Weber, the creatrix of a music that expresses the world-essence.[7] The life of man is like a *Cirkelcanon* (crab-canon): it is the same frontward and backward. He intended to symbolize this view by notes of the scale placed at the head of the various chapters of his book. Thus, the C below the bass clef heads Chapter I. The idea was that these notes would constitute a chorale. Carl Maria is imbued with the pantheism of the romanticists; in the landscape are sarabandes. "How the funeral marches, rondos, furiosos and pastorales whirl by me in riotous intermingling, when Nature is thus unrolled before my eyes!"[8]

Although he was convinced that the most favorable time for composing was during a condition of serene equilibrium, he possessed to an exceptional degree the power of doing creative work under irritation and mortification. He had the "important faculty . . . of shutting out the world and all its burdens when he closed the door of his study. Still more, he possessed a door in his own brain, which closed of its own accord when he proceeded to commune with his own genius. Whenever he took his music paper before him, whether in reality or in spirit, and listened to the song his genius sang, all was forgotten, even to that most fatal and most unfortunate of all tormenting demons—anger. Later still in his life, in days of bitterest suffering, when each moment the pulse threatened to beat its last, some of his freshest melodies streamed forth from the inexhaustible fountain of his brain, and creations, the furthest from all clogging earthliness, sprang into existence."

Examples of his remarkable powers of concentration abound. When undergoing imprisonment by royal command, he wrote the well-known song *Ein steter Kampf ist unser Leben;* at that time he managed to procure a battered-up piano, putting it into some sem-

[6] *Loc. cit.*
[7] A. Coeuroy, Weber as a writer, *Musical Quarterly,* 1925, **11,** 100.
[8] *Loc. cit.*

blance of tune by means of a common door-key. The *Mass* in E flat was produced during a period when Weber was weighed down by disappointment. *Oberon* came when he was dying. Only rarely was he conquered—even temporarily—by material failure.

At the time of his painful and undeserved treatment by his future wife, Caroline Brandt, when he was in an acute phase of weak depression, he found relief through the furor caused by the Battle of Waterloo. He rose out of the emotional slump to compose *Kampf und Sieg,* one of the most energetic of his works. The reconciliation to Caroline expressed itself in a perfect gush of activity, during which happy stage he completed the *Sonata* in A flat; also that in D minor. The song Opus 46, entitled *Die Temperamente beim Verluste der Geliebten,* is a remarkable portrayal of the "four temperaments" (sanguine, melancholic, choleric, and phlegmatic) under the feeling of loss.

A fine instance of his ability to cope with distraction is this: After long delays, and being finally ready to depart for his wedding, the royal order was conveyed to him at the last moment to write music for the cantata *Weinberg an der Elbe.* Almost mad with impatience and excitement, he went to meet his bride. But the mandate was fulfilled *within four days,* on the very eve of the ceremony. Most, if not all, of the music must have been composed while traveling. Another example still: On the morning of the day when *Der Freischütz* had its *première,* Weber spent two hours at his desk finishing the *Konzertstück* in F minor; this caused those who knew of the incident to marvel.

Weber was a man of high-geared activities and impetuous enthusiasms. Spohr said truly—although in jealous derision—that Carl Maria appealed to the masses. As a matter of fact, Weber was intensely interested in popular musical education. His belief was that if one persisted in performing masterpieces, the public taste would inevitably be improved. Whether history has shown him to be right or wrong in this theory is not for us to discuss at the present juncture, however. The abrupt alternations of light and shade in his music—as in his cyclothymic personality—the unerring feeling for brilliant and theatrical effects; the spontaneous, unimpeded melodic flow with its wealth of potent dotted-note rhythms; his insight into and sympathy with the inherent romanticism of the German folk-nature, his portrayal and love for the weird and the supernatural—all these captured the imagination of the populace.

He liked to frequent the quays and listen to the chants of seamen of various nations. The settings of Lieder from Körner's *Leyer und Schwert* are among the finest national songs ever written. He is not profound, but his music is unfailingly dramatic: that is what takes the public. More than this, Weber's works are natural and spontaneous. Regardless of the motives that inspired Friedrich Kind, the lawyer-poet and librettist of the *Freischütz,* he scarcely realized the many implications redounding to the composer's credit when he said: "I cannot see what there is in the melody of the *Bridesmaid's Chorus* to make such a wondrous fuss about! Why, from the very words, it could not have been otherwise. Every man would have hit upon the same idea." Would he? We may say of *Der Freischütz* that it was not composed, but that it grew. Concerning the setting of words to music, Weber remarked: "The great danger of too anxiously sought correctness is that the inner truth of the melody may lose its bloom and freshness. The decision as to whether music or poetry is to have the upper hand in a particular case is the rock on which so many have come to grief."[9]

After what we have already seen of Weber's methods of composing, it is plain that he was not tied down by the restrictions of the piano. Although a pianist and improvisor of the first rank, his manner of creative thinking utterly transcended anything like a keyboard trial-and-error procedure. His random, experimental processes took place mostly *within;* a surprisingly small portion of these were carried on externally. He says: "The very position I had taken up to work *at the piano* was, as my last resource, a bad sign. The composer who gets his material from *there* is almost always born poor or well on the way to handing over his mind to the banal and commonplace. For these hands, these damned 'piano-fingers' which from constant practice acquire a sort of independence and self-willed intelligence, are quite unconscious tyrants of the creative power. *They* invent nothing new; in fact, everything new is uncomfortable to them. Quietly and cunningly, like true mechanics, they botch old, familiar limbs of sound into whole bodies, which look almost like new figures, and which, because they sound clear and euphonious, are accepted at a first hearing by the corrupted ear. How differently does the man create whose *inner* ear is the judge of things simultaneously invented and criticised. This spiritual ear . . . is a divine secret, peculiar to music and incomprehensible to the non-musician. For it hears whole passages, even whole pieces

[9] G. Abraham, *op. cit.,* p. 38.

at a time, and takes no notice of little gaps and unevennesses, leaving the filling in and smoothing out of these to later consideration. . . ."[10]

Throughout his career, Weber was distinguished for the speed with which he could write. This facility speaks of a wonderful capacity so to manipulate his imagery *(auditory and visual eidetic)* that the task of inscribing amounted to little more than that of a copyist. When, as a boy of fourteen, he wrote the opera *Das Waldmädchen,* he completed the second act in ten days, animated, he informs us, by the desire to imitate celebrated composers.

We have mentioned how quickly the *Weinberg* Cantata was prepared. The *Jubel* Overture was done in about thirteen days, the instrumentation of its sixty-three pages consuming only three days. The transcription of *Euryanthe,* as previously pointed out, took only sixty days. Forty days intervened between the completion of the overtures to *Freischütz* and *Preciosa.* The latter, which was written before the opera itself was sketched on paper, shows how clearly the various parts of the opera must have been in mind before jotting down a single note. But we should emphasize a fact here: Weber, although he could produce on the spur of the moment, preferred to spend a long time thinking over a composition before beginning to write.

The problem of the composer's attitude toward the matter of programme must be considered. Niecks has stated: "It is a mistake, although a time-honoured definition, to say that programme music is music with an explicit verbal programme prefixed to it."[11] Just what was Weber's position on this question? He wrote: "In the prayer during the battle, I must entreat you not to look upon the piano accompaniment as descriptive of a battle-field. I am not fond of such musical pictures. What I wanted to express was the swelling feeling of the agitated soul." From this there would seem to be no room for doubt that Weber's programme-attitude was essentially psychological, and that as to him Niecks's thesis applies. Let us consider the *Konzertstück,* which appears, upon its face, to be "absolute" music. When we do so more closely, the fact emerges that Weber was not averse to "musical pictures," but was trying to prevent ridicule, of which he was so afraid.

In 1815 the composer, in a letter to Rochlitz, discusses the then

[10] *Ibid.,* p. 29.
[11] F. Niecks, *Programme music in the last four centuries* (London, 1906), p. 3.

projected *Konzertstück* in terms of a programme; he adds that he dislikes titled tone pictures, but that nevertheless the idea of a detailed programme forces itself upon him irresistibly. Only the fear of being counted among the charlatans, he confesses, deters him from explicitly and openly attaching a story to the composition. Six years later, within a few moments after the completion of the work, Carl Maria told to his wife and Benedict the whole tale of this brilliant and beautiful piece—pages out of the Crusades, very chivalric and romantic.

And what about the *Invitation to the Dance?* Some have regarded this as merely a fanciful title. But the composer's wife has testified conclusively to the contrary; for he confided to her its precise programme, even tracing the course of the action bar by bar.[12]

So, despite Weber's formal denial of possessing a natural taste for musical pictures, it would be absurd to question the fact that they constituted an indispensable groundwork for his productions. The visual imagery, inevitably linked with the kinesthetic processes, clustered around some fanciful sequence of events and evoked the appropriate tonal phantasies. We know that Weber used, in his short compositions—we mean those that bear no formal marks of a programme—a great deal of the materials originally intended for incorporation into operas. He surely treated his programmes as *more* than so many psychological symbols. His was a highly concrete mind. He entered into the sentimental, romantic, and legendary musical schemata with a zest eloquently bearing witness that they had—for the time being at least—assumed for him the guise of reality.

Borderlines are always hard, if not impossible, to define with any degree of sharpness. It is not always easy to determine when the step from one realm into another has been taken. Nor is the typical problem that of *either* the concrete *or* the symbolic: usually the situation presents an intricate mixture of both aspects. Without a quasi-realistic introjection into the domain of the imagination, no artist can hope to create a work capable of attracting and holding the universal attention.

Weber is a strange blend of realist and idealist. He is a true romanticist in the striving to attain universality, being the musical counterpart of the group represented by E. T. A. Hoffmann, Tieck, Novalis, Schleiermacher, and the Schlegels. Through the exercise

[12] *Ibid.*, pp. 138-144, gives the detailed description of the programmes belonging to the *Invitation to the Dance* and the *Konzertstück.*

of unusual powers of projection, coupled with a far more than artistic and poetic attitude toward the supernatural—for he was frankly superstitious—Weber appealed with overwhelming success to that fundamental trait of human nature: love of the improbable, phantastic, and mysterious. Who is so intellectual and sophisticated that he is immune to the necromancy of the *Wolf's Glen* scene? Who has so far outgrown his childhood belief in fairyland as not to turn back the pages of the years at the call of Oberon's magic horn?

Carl Maria founded his operatic art on this principle: "a work . . . forming a finished whole, wherein all parts and contributory effects of the kindred cooperating arts are so fused and blended together that out of their destruction, as it were, a new world emerges." Here is the theoretical key to Wagner's music-dramas.

"In my music you will find myself." Yes, the man's whole energetic being and superlative nervous output peer everywhere from out of his scores. He was not a dreamer alone, but also a man of action, the champion of a great movement in the history of musical art.

The famous crescendo effects, illustrated so effectively in the opening theme of the *Allegro con fuoco* of the *Oberon* Overture, with its steep dynamic gradient from *p* to *ff* within the narrow range of just six and a half beats; the short slurs; the onward rushing of tone; the *Presto assai* of the third movement of the *Sonata* in A flat, with its invigorating and surprising shifts of intensity level; the unforgettable melodies of *Der Freischütz,* shadowed by the deep forests its creator loved so well: these are the outpourings of an irrepressible and picturesquely imaginative being, throwing off the gross realities of the commonplace world insofar as possible, finding renewed creative energy in the act of creation.

Wagner, pronouncing the eulogy at the grave of Weber, identified the secret of the success won by the romantic wizard who had laid in such large measure the foundations for his own epochal work: "There never was a more German composer than thou. Into whatever distant, fathomless realms of fancy thy genius bore thee, it remained bound by a thousand tender links to the heart of the German people, with whom it wept or smiled like a believing child listening to the legends and tales of its country."

Carl Maria chose this for his epitaph: *Hier liegt einer, der es wahrhaft redlich und rein mit Menschen und Kunst meinte.*

PURPOSE AND GESTALT

A Reply to Professor McDougall

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Professor McDougall has devoted four articles in this journal to an exposition and criticism of the dynamic principles developed by gestalt psychology (G.P.).[1] That he, a protagonist in the fight against behaviourism, should find much in G. P. with which he is in full agreement, is as little surprising as the fact that his objection to G.P. as a whole seems even stronger, more emotionally tinged, than his partial acceptance. It is of more than ordinary interest to see G.P. through the eyes and the temperament of so vigorous and powerful a thinker as McDougall, for his criticism is bound to reveal not only shortcomings of the theory but also such of its features as by their very opposition to his own views and convictions must be of fundamental importance for its understanding and evaluation.

Behaviour and Theory

There are three such features that seem to me to constitute the chief difference between McDougall and G.P., and I shall presently begin to discuss them. In all three, though trying to be just to McDougall, I shall defend the position of G.P. But there is another aspect to his criticism, a reason for his opposition which occasionally turns into almost moral indignation, where I am inclined to sympathize with him much more than he will probably expect. If I am right, McDougall compares behaviour, as it appears in the three books by Köhler, Lewin, and myself, which form the basis for his articles, with behaviour, as we all, he, Köhler, Lewin, and I, know it; he finds that the former is at best a very bad likeness of the latter, so bad indeed that somebody who only knew the picture would know so little of the original that he could not even recognize it. And McDougall is shocked that the G.Ps. pretend to have given

[1] I follow McDougall in the use of two abbreviations, viz., G. P. for Gestalt psychology, and G. Ps. for Gestalt psychologists.

a true picture, shocked because almost everything that seems beautiful and admirable to him in the original is conspicuously absent in the portrait.

This attitude of McDougall's I welcome. It is necessary to keep us aware of our task of interpreting mental reality as it is instead of constructing one that fits our systems;[2] G.P. itself arose in contrast to the picture of mind which was painted by associationism. I also quite agree that the pictures which the G.Ps. have offered are very insufficient, although I do not think that they distort reality, or at least no more than theory at any given time is bound to do. Rather shall I say that G.P. is still compatible with a great number of behaviours, of which the actually occurring behaviour is but a special case, not yet derivable from the principles of the G.Ps. But even if we assume that some of their theories do falsify nature, we have as yet decided nothing about gestalt theory itself. It is important not to overlook this distinction. Gestalt theory is the attempt to introduce the gestalt category into the explanation of nature, i.e., a concept of wholes that are not reducible to their parts. No science, psychology as little as any other, can be built on this concept alone; like all other sciences, psychology needs material and other concepts. The concept of the Ego, for instance, is not in any way derivable from gestalt principles; Egos happen to exist, and gestalt principles are capable of assigning to them a place in a scientific psychology. Gestalt psychology in the strict sense would be wrong only if the picture which the G.Ps. have drawn owed its blemishes to the gestalt concept. As far as I can see, McDougall's criticism does not include this accusation.

Much, then, of the fullness and zest of life, its struggle, defeat, and victory, its dancing joy and drooping sadness, is sorely lacking in the pictures which the G.Ps. have sketched. So far I am in full agreement with McDougall. Our differences begin to appear when we try to improve the picture. I believe that our method is ultimately right; scientific procedure enriched and modified by gestalt concepts will gradually, very gradually, succeed in filling in more and more lines and making the picture increasingly more faithful to reality. McDougall is of a different opinion. He believes that bi-

[2] I can quote a passage from McDougall which I found after having written these lines to show how far our agreement goes. He wrote several years ago: ". . . a psychology which recognizes as obscure many problems that truly are obscure; which admits that we are very far from an adequate understanding of man or Nature; and insists chiefly that we do not distort or falsify the immediate teaching of experience in the interests of a spurious clarity and symmetry of a rationalistic system" (**3**, 360).

ology and psychology, as a biological science, have a method of their own, which is Aristotelian rather than Galilean (**7**, 63). Since Professor Lewin will probably reply to this part of McDougall's criticism in full, I shall confine myself to characterizing his own methods as those of a naturalist. I should have said an old-fashioned naturalist, to make my meaning more precise, if the word "old-fashioned" did not carry a note of criticism or even ridicule which is far from my intention. We owe to the "old-fashioned" naturalists a great debt. They have observed nature with a loving eye and have discovered a wealth of valuable facts. Thus McDougall the naturalist observes and describes human behaviour, and many of his observations and descriptions are truly excellent. But what he calls explanation is not very much more than his description. Because they were not content with this kind of explanation the G.Ps. developed their own systems, trying to be natural scientists rather than naturalists. Their standards for psychological theories are different from, not to say higher than, those of McDougall. Speaking for myself, I should like to dwell in the more concrete and live world of behaviour, which is McDougall's chief domain; but my scientific conscience bids me work at lower levels in the hope of preparing a more solid foundation for scientific work at the higher.

Hormic Theory

The methodological difference indicated at the close of the first section forms one of the three main distinguishing features which I proposed to discuss. It will be resumed later, although it plays a part in the whole following discussion. I shall begin with another point, the one that characterizes McDougall's point of view more than any other, I mean his hormic theory; the second point will be his interactionism and the third his methodology.

What then is McDougall's hormic theory? He introduced this term in his *Outline*, borrowing it from Sir Percy Nunn. "The view that all animal and human behaviour is purposive in however vague and lowly a degree, and that purposive action is fundamentally different from mechanical process, may be conveniently called the *hormic theory.*" (**1**, 72, italics in original). The hormic theory contains two major propositions: (a) that "purposive action is the most fundamental category of psychology" (**1**, 51, in original italicized), and (b) that "you desire and seek this or that or the other goal, *because you are constituted in that way*" (**4**, 25, italics mine). In a paper called "The Hormic Psychology" McDougall, after giving a

definition similar to the one just quoted (see below) and elaborating this definition so that both the dominance of purpose in behaviour and its foundation in the organism's innate constitution are given their dues, goes on to speak of the limitations of this theory: "It is characteristic of the hormic theory that it does not presume to give a final or complete answer to this question [*viz.* "What is the nature of that to which the word *instinct* points?"] in terms of entities or types of events that enjoy well established scientific status.

"Hormic activity is an energy manifestation; but the hormic theory does not presume to say just what form or forms of energy or transformations of energy are involved" (**2,** 14).

From the point of vantage of this hormic theory gestalt psychology, in particular in Köhler's and my own contributions, appears a complete failure. "But it is the activities of the other kind, the truly conative, the unmistakably purposive, which psychology must learn to understand, if it is to be of any service to mankind.

"And what have Köhler and Koffka to say on this great dynamic problem? They have nothing to contribute. Both make a certain grudging inadequate recognition of these conative, these purposive, activities. . . " (**7,** 239f.).

It may help so spirited a writer as McDougall if I tell him that in the last passage, as in a good many others, he fails to separate statement of fact from interpretation; and that, moreover, his interpretation of the fact is wrong. Speaking for Köhler as well as for myself, I will say that our recognition of purposive activities, which is a fact, inadequate though it may be, is very far from being grudging. We are no less convinced than McDougall that behaviour cannot be properly described without some such terms as purpose, intention, desire, even if we might not be willing to admit that purposive action is the most fundamental category of psychology. My reluctance to accept this side of the hormic theory originates not only in the doubt whether such a statement can have much scientific meaning before the conceptual equipment of psychology has been systematically investigated, but also chiefly in my belief that such an investigation, if it were carried out, would reveal concepts more fundamental than that of purposive action; more fundamental from the point of view of the question: What conditions must a system fulfill in order to manifest purposive behaviour?

But whether it supplies us with the most fundamental concept or not, purposiveness is an enormously important aspect of behaviour;

in that respect there really is no difference between McDougall and G.P.

But G.P. has, as we have heard, nothing to contribute to the great dynamic problem raised by the existence of purposive activity. What, then, is the contribution of hormic psychology to this problem? As far as I can see, it makes only one: "To the question—Why does a certain animal or man seek this or that goal?—it replies: Because it is his nature to do so" (**2,** 13).[3] In other words, it explains the purposive behaviour by the assumption of inherited permanent conative disposition (**7,** 329f.). Frankly, I cannot see that this answer is such a great contribution to our problem. Not only is it, as our author emphatically admits himself, far from complete and final, but it seems to me not even to contain an indication of the way on which we ought to proceed in order to discover a more complete solution. What are these conative dispositions like which endure not only in the individual but also in the race? How do they become effective, that is, how do they influence behaviour? Because G.Ps. found no satisfactory answer to these questions in the hormic theory, they tried to develop some tentative hypotheses of their own, hypotheses which may be criticized on many grounds, but which at least make an effort to understand, as it were, step by step what is happening when a man grows angry, when he becomes the leader of a group, or when he cuts himself loose from his associates and isolates himself in paranoic ideas of grandeur. Words like *permanent inherited dispositions* seem to G.Ps. too meager, too indefinite, too undynamic to take a place in a truly dynamic theory of behaviour.

Saying this, I will add that there are many important facts emphasized by McDougall which have received but the scantest attention of the G.Ps. and which prove that a concept that plays the role of McDougall's permanent disposition is required. But such a concept, far from being offered as the solution of the problem of behaviour, must be given a place in a coherent theoretical system. What I mean by this I shall try to clarify with the help of a quotation from McDougall. After saying that Dembo's account of the anger induced by her procedures fits perfectly with his own account, and calling her theory, based on the concept of barriers, long-winded and purely fanciful, he continues: "But it [Dembo's explanation] is one which leaves entirely unexplained the enormously significant fact that anger is recognizable as essentially the same emotion-impulse in all men and many animals. . . . How should the anger-im-

[3] Almost literally the same definition is given **6,** 160 n.

pulse in all men and all apes show such constancy in respect to the conditions which evoke it and the mode of its expression, unless it be true that it springs, always and only, from an enduring disposition, . . . one which has been transmitted . . . through countless generations, undergoing only very gradual evolutionary changes?" (**7,** 330). The rhetorical question with which this quotation ends does, of course, show no more than that the author knows of no other explanation than the one he formulates; but it does not prove, although that is its implication, that it *is* the only possible one.

But for argument's sake let us first accept McDougall's answer: anger springs from an enduring disposition. Then, apart from many other questions, we must ask: how did this disposition arise; "How did the human species come to be so constituted? A question to be answered only by further research into the processes of organic evolution" (**4,** 26). This proposition may either mean that our question belongs to the province of the biologist proper and does not concern the psychologist, or it presupposes a general idea of the *how* of organic evolution. The first alternative would be highly unsatisfactory, since it would demand that the psychologist stop short in his investigation of behaviour at the point where it really becomes interesting—for at least to me it is not at all interesting to learn that under certain conditions I grow angry because I have a permanent disposition for growing angry. I do not believe that McDougall wants his proposition to be so understood. But the other alternative points far beyond the explanation by inherited disposition; for McDougall is a Lamarckian; he believes that evolution involves the inheritance of acquired characters. More broadly expressed he wants to derive an organ from a function, and here again G.P. is with him.[4] But then the anger disposition should be explained as the result of an anger function or process, that is, of anger experienced and expressed by animals who had not yet inherited this valuable disposition. This might have occurred millions of years ago, but it must have occurred sometimes, and if it is the psychologist's task to study behaviour, this behaviour belongs to his province and possesses a high significance for him, since according to our assumption our own behaviour, originating in an inherited disposition, was ultimately created by its ancient predecessor. I do not see how McDougall can escape this consequence. For I do not think that he

[4] Cf., for instance, pp. 202 and 206 f. of my *Principles,* where following Köhler I try to develop a somewhat concrete hypothesis about the origin of the structural differentiation of the retina.

will assume anger to be a fundamental disposition belonging to all living organisms. If he did, he would simply say that it is unexplainable; but if he does not, and that seems to me, as I just said, his position, then he is forced to explain anger without disposition, and that is exactly what Dembo tried to do.

We return now to McDougall's rhetorical question and refrain from accepting his answer as necessary; that is, we claim that there are other possibilities. Since this is the conclusion to which we have been led in our first argument, that is in itself nothing new, unless we explore what the other possibilities may be. I shall begin such an exploration by criticizing the concept of disposition itself.

Transcribing a previously used quotation from McDougall, I might point to the significant fact that we recognize a conflagration as essentially the same activity whether we observe a house, a forest, a pile of papers, or a rubbish heap on fire. How should the burning activity in all these various objects show such constancy in respect to the conditions which evoke it and the modes of its expression, unless it be true that it springs, always and only, from an enduring disposition which is the same in all these objects? More briefly expressed, we do *not* ascribe a special disposition, "to-burn," to wood, paper, rags, and other inflammable articles, just as little as we explain the sleep-producing action of veronal by the veronal's power or disposition to induce sleep. In all these cases we want to understand what actually happens when an object catches fire; our explanation becomes first a matter of chemistry and then of physics. We understand the process of burning as a process of oxidation, we find differences between atoms in their relation to oxygen—certain materials do not burn, others do—and this difference again must be explained in terms of the processes which occur when different atoms interact, ultimately in terms of more or less stable equilibria. That is, the ultimate explanation is in terms of some dynamic properties of systems from which their behaviour under all possible conditions can be derived.

Now to me this seems to be the problem of any science, to derive observed phenomena from certain ultimate systematic properties which under varying conditions will lead to a whole class of processes. But it goes against my understanding of the task of science, or against my ideal of science, to assign an observed process to an assumed entity that has no other property, or no other known property, than that of being able to produce the observed process.

I find that this is exactly what a mechanical theory does. And therefore, from this point of view, though certainly only from this, McDougall's theory seems to me to be a mechanistic theory. the type of theory against which he has fought through his whole scientific career.

What, then, is my attitude with regard to McDougall's question? How can I explain that the anger impulse in all men and apes shows such constancy in respect to its conditions and modes of expression? In this article I can do no more than indicate how I would formulate the problem. To me the question is: how must a system be constituted that under anger-producing conditions manifests anger behaviour? And it will help the solution of this general problem to ask the complementary question: how must a system be constituted that under anger-provoking conditions is *not* roused to anger?

Such a formulation is not only more general than McDougall's question, but it demands a different kind of answer from the one given by McDougall. For this formulation implies an *intrinsic* relation between the conditions which provoke anger and the manifestation of anger. In the final solution anger must be intelligible as the, intrinsically, not mechanically, necessary result of the interaction between a system and certain conditions of its environment. It seems to me the tragedy of McDougall's answer that while it is intended to replace the blind and barren mechanistic explanation, it puts in its place an equally blind and in my opinion quasi-mystical explanation; equally blind, because the anger-reaction in this theory is due to an anger disposition which the organism happens to possess; if it possessed a different kind of disposition, it might react with joyous laughter to anger-provoking conditions, and with anger to conditions that provoke us to curiosity, or compassion, or whatnot.

I shall add another reason for my rejection of the hormic theory because it gives me the opportunity to reply to another of McDougall's criticisms, directed against my theory of accommodation and convergence in particular and my theory of perception in general. In order to be as clear as possible I should have to sketch my own theories and to quote a whole page of McDougall's (**7**, 324). Since space forbids either procedure, I shall have to be somewhat elliptical. "Do not facts of this order [that "convergence and accommodation are perpetually adjusted and readjusted to whatever object we strive to discern . . ."] refute Koffka's doctrine in its

chosen application and enforce the truth of the view that perception is conative? Are we not justified in asserting—no perception without attention; no innervation (at least of a nicely adaptive kind) without conative striving towards a goal (if only the goal of fuller cognition). Without conation (attention) the mere stresses of the sensory field can achieve very little, it would seem" (**7**, 324-325).

Again I shall begin my argument by admitting McDougall's proposition, in this case that no nicely adaptive innervation can occur without conation. If I admit it, however, I am still faced with the problem: how does conative striving manage to get the lens into the proper curvature, how does it innervate the external muscles of the eye so as to achieve proper convergence and the resulting fusion? I cannot see that McDougall attempts to answer these questions and so I will try to do it for him. So far as I can see, three answers are compatible with his text: (1) He accepts my theory of field forces, provided it be supplemented by the acknowledgment of his conative striving. This interpretation, however, seems improbable, since in the quotation he says that certain facts *refute* my theory. If, however, he accepts it, he would have to explain why the field forces alone are *never* able to achieve the required result without the guidance of the hormic factor. (2) He accepts the old mechanistic theory in terms of preformed bonds of neurons which are utilized by conation as the keys of a piano are used by the pianist. Again I cannot believe that he chooses this alternative, for then again he would be much closer to mechanistic theory than seems compatible with his antimechanistic tendency —although I believe that the mechanist has no better friend than the vitalist. But if this interpretation is nevertheless correct, then he would have to deal with the many objections against the machine theory by invoking the "blind wisdom" of the hormic factor which, to continue a metaphor introduced above, can still play the piano when five white keys have been connected with the strings of the five black ones and vice versa. The power of this unknown agent would have to be so great that it is not easily led astray by alterations of its instrument, the neuro-muscular system. According to my standards this theory could not be accepted as an explanation. (3) McDougall refuses to make any assumption at all about the way in which conation accomplishes accommodation and convergence, being content with the statement that it does accomplish them. Such an interpretation seems supported by a quotation given above (p. 221), but again it would be the renunciation of a real

theory rather than a theory in its own right. McDougall insists again and again on the biological nature of psychology and criticizes the G. Ps. for forgetting or ignoring the facts of biology and physiology. But I should like to know which biologist or physiologist would be satisfied with that kind of a theory of accommodation and convergence.

Both McDougall and G. Ps. try to refute mechanism, although as we shall see presently, they define this term differently. G. P. proceeds by showing in a number of concrete instances, e.g., accommodation and convergence, that a mechanistic, or machine, theory does not fit the facts, and develops in its place a dynamic theory of self-distribution and -regulation. McDougall, while perfectly willing to accept our negative criticism of machine theories, is not equally prepared to approve of our positive contributions. Since he defines mechanistic explanations as ateleological ones (**2,** 6, text and n.; see also **5,** 13-15), the hypotheses advanced by the G. Ps. in place of machine explanations are no less mechanistic theories than the ones they wish to supplant; and since he has set out to refute mechanistic theories, the mechanistic explanations of G. P. can be no better than those of the reflexologists. I regret this "all or nothing" attitude. It plays into the hands of the true mechanists and their machine theories; for surely their cause is made more difficult if one offers a scientific theory of facts which defy their principles than if one invokes an obscure factor to explain these facts.

I shall now take a further step and examine McDougall's main thesis that all perception is conative.[5] "Suppose you stand close to the window-pane, staring vacantly into a blue sky. . . . A fly on the window-pane is imaged on disparate points of your two retinas; . . . Suddenly the fly moves, and in doing so, draws your attention. At that moment . . . your eyes converge upon, and your lenses and pupils accommodate to, the moving fly . . ." (**7,** 324). Taken in

[5] I must confess that I am not quite certain that I understand McDougall's meaning, because statements at different places in his four articles seem irreconcilable with each other. Thus he says in the first article: "It is a delicate question whether and in what manner conation enters into that primary patterning of the sensory field which the G. P. is so much concerned to exhibit as the consequence of dynamical self-distribution. Perhaps such processes are wholly physico-chemical, as Köhler assumes; . . ." (**7,** 239). But in the second he writes in criticizing me: "I desire, rather, to draw attention to the view . . . that perception of objects takes place without attention or conation; and to question this view. Following Stout, I have argued . . . that there is no perception without some degree of attention, and that attention is conation working in the cognitive field" (**7,** 324). In my text I have assumed the latter quotation to represent McDougall's real view.

conjunction with the quotation (given on pp. 225 f.), this proposition emphasizes the fact that without attention there can be neither perception nor adaptive movements of the eyes, which I had explained as due to field forces. McDougall's argument, however, seems to me to derive its plausibility from its ambiguity; it confuses, I believe, the fly in the geographical, physical, with the fly in the behavioural, phenomenal, environment. According to McDougall's description the fly being imaged on disparate points of my eyes, catches my attention. How can the fly do that? This is a problem I try to solve, while for McDougall it seems an ultimate fact. But surely the geographical fly can catch my attention only by dint of its one means of communicating with me, that is, by my retinal images of it. But, as McDougall himself points out, the images fall on disparate points, and therefore, if these images give rise to behavioural objects, they produce not one fly, but two flys. At best, therefore, two flys would catch my attention, would arouse my conative striving towards "the goal of fuller cognition." And then my striving innervates the eye-muscles and produces the cognition of one fly instead of the two! Differently expressed: the object which catches my attention, the *one* fly, is the object which is the *result* of my eye-movements. There was not *one* fly that could catch my attention, that could account for my conative striving, before I focused my eyes properly. Only if one forgets the difference between behavioural and geographical objects can one write that the fly draws my attention. In order that an object catch my attention it must first have entered my behavioural world. To put conation first and perception afterwards is putting the cart before the horse, as Köhler has pointed out so clearly in his replies to Rignano (**10,** 193 f.) and G. E. Müller (**9,** 386 f.).

What then is my explanation of this event? While the fly was sitting on the pane, its retinal images, owing to their small size and blurred contours, did not give rise to a special behavioural object. Now the, geographical, fly moves; thereby the retinal images are shifted on the retina and give rise to dynamic processes in the brain that at once result in isolating them from the background in which so far they had been merged, and of changing the whole structure of the total field. These processes become outstanding features of the field, with the result that through convergence and accommodation they are unified, become one process, and sharply defined; at the same time they affect the Ego which now becomes directed towards

it: *I attend* to *the* fly. And then I shall act; either I shall disregard the fly and return to my previous trend of thought or action, or I shall try to catch or swat it, or I shall observe its behaviour. All these activities on my part presuppose conation, dynamical processes between the Ego and the fly. Moreover, depending on these activities the perceptual fly itself will change; perception will prove dependent upon attention. But it was my contention that there are certain other responses of my body which are due exclusively to forces in the perceptual *environment,* that are *not* Ego-directed, that are not conative. It was a fundamental error of psychology to exclude or neglect conation from scientific psychology. But I believe, and hope that I have shown, that McDougall's panhormism is also an error, an error which does not only lead to unsatisfactory psychological theories in general, but tends to cancel the value of conative concepts in particular.

McDougall's hormic theory is only a part of his hormic or Dionysian *Weltanschauung.* He finds the origin of our reasonable thought (**7,** 240), of the belief in the external world as well as in our own selves, the awareness of causality, and lastly the existence of significance and value (**7,** 141), in our purposive nature. That and why I disagree with such a position, I have tried to set forth in my book, and it is quite impossible to treat these problems within the scope of a short article. I may, however, refer McDougall and my readers to an article by Wertheimer (**15**) in which he tries to show how a truly non-relativistic and non-mystical theory of value may be developed.

Interactionism

Despite inconsistencies in detail McDougall's position as a whole is thoroughly consistent inasmuch as the main features of his system spring from the same root, his hormic theory, which for this reason was discussed with so much detail in the preceding section. Thus his interactionism and his methodology, the two remaining points of our discussion, follow directly from his fundamental concept.

The connection between his hormic teleology and his interactionism is quite explicit in his writings. In the last of his four articles he begs me "to strive earnestly toward the goal of a better understanding of the nature of teleological or goal-seeking activity" (**7,** 143). In my attempt to comply with this request I found the following passages: "To accept the teleological causation of human

agents is to believe in the causal efficacy of psychical events; . . ." (**2,** 7). "Where, then, is to be found any justification for the old-fashioned prejudice against psychical causation, which, if admitted at all, can be only teleological causation?" (**2,** 9). Unless I fail to understand plain English words, these quotations claim that for McDougall teleological causation implies that psychical events cause the occurrence of physical events, i.e., that interactionism is the solution of the psychophysical problem.

I have discussed in my *Principles* why I cannot accept the interactionist view (**14,** 46 f.), and I cannot in this article engage in an elaborate discussion of the rival theories advanced in this field. I shall merely attempt to deal with the criticism that McDougall has directed against G.P. That as an interactionist he rejects the theory of isomorphism as formulated by Köhler is no more than logically consistent. But the arguments that he uses prove that he has failed to understand this isomorphism. He is not even aware that those same arguments have been discussed several times by Köhler himself. For this reason I shall be as brief as I can be without running the risk of being incomprehensible. "Isomorphism does fly in the face of a wealth of facts" (**7,** 134). Which are they? (a) If you see a square, then according to McDougall's interpretation of isomorphism, "the cerebral excitation correlated with your awareness of the square occupies in the brain a square area of two dimensions" (**7,** 134). Wrong: "In my opinion the modern psychology of perception has established beyond a doubt that the physiological correlate of perceived spatial order can only be thought of in terms of process distribution in *functional interconnection,* and of gradations and articulations in such distributions. Therefore the physiological theory of phenomenal space should have *dynamical* not geometrical character. The symmetry-properties of a seen circle, for instance, would not be founded on merely geometrical relations between the places of independent local processes, but on the fact that in an extended process-whole which is the correlate of the seen circle there exists a corresponding symmetry of functional connection." Thus wrote Köhler in 1929 (**11,** 399 f. My translation. Italics in original), and in his *Gestalt Psychology* of the same year, the book which forms the basis of McDougall's criticism, he said the same thing again and again, even if not quite so explicitly. I shall give only one quotation: "All experienced order in space is a true representation of corresponding order in the underlying *dy-*

namical context of physiological processes" (**12,** 64; in the original the whole sentence is italicized).

Köhler's isomorphism then demands not that the cerebral excitation correlated with the awareness of a circle, or a square, occupies in the brain a circular, or square, area of two dimensions, but that the process distribution in the brain has the same *functional* properties which the seen circle or square have for the person who sees them.

It is almost unnecessary to proceed with McDougall's argument; his fundamental interpretation of isomorphism being wrong. his arguments refute the wrong interpretation, but not the theory. However, since this part of G.P. seems particularly difficult to understand, I shall continue. You are, then, still fixating the center of a square "from such a distance that the boundaries of its retinal image fall well outside the foveal area." In that case the excitation process in the brain is distributed over the two hemispheres and cannot therefore be a square. In reply to such an objection, first advanced by G. E. Müller, Köhler wrote the passage just quoted. In a later article, referred to in my book (p. 281), Köhler is a good deal more explicit: "We have to remember that the distances in the brain field have to be measured in *functional* coordinates" (**13,** 348). Since he develops this idea with the help of a sketch of two points at different sides of a brain fissure, I need do no more than refer McDougall and the reader to this passage.

(b) Even if the term "identity of cerebral or psychical process" is not to be taken too literally, "there must be some constancy of relation between the shape you are conscious of and the shape of the correlated physical Gestalt in your brain" (**7,** 136). But a square looks like a square whether you fixate its center, when the cerebral process will be distributed over the two hemispheres, or whether you fixate a point a little to the right of its right-hand border, when the cerebral process will be confined to the right hemisphere. "It is, then, in the highest degree improbable, if not utterly impossible, that the cerebral Gestalt in the former case is of the same shape as the cerebral Gestalt in the second case." Therefore "the principle of *isomorphism* cannot be valid." (**7,** 137). This argument is valid only under the assumption that *geometrical* shape is the physiological equivalent of perceived shape. But since this assumption is false, the argument is spurious. As a matter of fact, we have every reason to believe that functionally two points may be contiguous to each

other even if one belongs to the left, the other to the right hemisphere.

(c) The case of distortion of after-images. You develop the after-image of a vertical right-angled bluish-green cross and project it on the walls of your room where it will assume a number of different shapes. "The conscious cross changes in shape with every position to which it is projected, in *spite of the unchanging retinal stimulation.* Is it conceivable that these changes of shape of the cross as it appears in consciousness are determined by corresponding changes in shape of a cross-shaped area of cerebral excitation? . . . And if the G.P. replies in the affirmative, as he must; then we ask—Is it conceivable that the perspective distortion of the image of the boundaries of the square area and their rectification as spatial meanings . . . . should bring about in each case just the appropriate change of shape of the cerebral Gestalt of the cross, in spite of the unchanged shape of the retinal excitation?" (**7,** 137 f.).

All the questions that McDougall asks in this quotation have been answered in my book, where I first refer (p. 223) to a beautiful experiment performed by Thouless in which the distortion of a perceived picture (not an after-image) takes place without change of fixation; and where I later on develop a tentative hypothesis why such distortions occur (pp. 231 f.). McDougall's last question reveals two characteristic features of his argument: he expects that to a constant local stimulation there should correspond a constant cerebral process, and he calls the fact that we see the wall as square despite a distortion of its retinal image, a "rectification as spatial meanings." But G.P. far from interpreting the latter fact as a meaning connects the two facts in the same cerebro-dynamic context. I have discussed similar problems so often in the sixth chapter of my book that I am loth to do it again here.

What I cannot fully understand is that McDougall uses as a decisive argument against our theory of isomorphism an interpretation of facts against which we have experimented and argued for over twenty years. And to complete the confusion he admits that in perception the principles of gestalt dynamics are perhaps adequate (**7**, 239; see above p. 227); but if they are, then constancy of local stimulation does in no wise guarantee constancy of cerebral excitation.

If a psychologist of McDougall's calibre fails so utterly to understand the position of G.P., if he does not see how its theory of

the phenomena discussed by him and its isomorphism are logically consistent, his thought must be guided by some dominant factor which blinds his vision. This dominant factor is, I believe, his interactionism, the necessary consequence of his hormism. Not only is his interactionism incompatible with isomorphism, it is also diametrically opposed to the gestalt theory of perception. This becomes clear when we see how McDougall explains the distortion of the after-image: "The facts seem to suggest almost irresistibly that the changes of appearance of the cross (of its spatial meaning), with every change of the position upon which it is projected, is due in each case to an activity of adjustment or interpretation which supervenes upon the cortical process which is the immediate cerebral ground of the cross-shaped patch of colour (the after-image); that the latter (like its retinal basis) continues substantially without change; while the interpretation process varies with the background upon which the cross is projected" (**7,** 138). In this passage McDougall uses an explanation which Köhler has called the meaning theory and which I have discussed under the name of interpretation hypothesis. Again I find it hard to understand why McDougall finds this theory "almost irresistible" after Köhler and I have argued against it, using examples very much like those by which he supports his contention, and without refuting or even mentioning our arguments (cf., e.g., **12,** 71 f., and **14,** 86 f.). But I am now concerned with a more important issue: McDougall's explanation is a special form of the interpretation hypothesis, one which he himself calls "the psychic-stimulus theory of space-perception" (**7,** 138 n.). Since he refers in this place to his *Outline* we have to go back to this earlier work of his for the development of this theory. "Every visual pattern is seen by me as such, or as an object of definite shape, only in so far as I have, by heredity or by training, a mental disposition corresponding to that object, and in so far as the retinal stimulus brings this disposition into play. . . . In general terms, we may say that shapes, positions, and all spatial attributes are objects which the mind, or the subject, thinks in response to solicitations of the senses; they are 'meanings' which we find in the object or read into it. For every object which the subject can think of, he must possess a coresponding cognitive disposition, innate or acquired; . . . As we said in dealing with instincts, *the cognitive disposition is a lock which can be turned by a key of appropriate pattern, and the key which is operative in perception is the qualitative,*

the temporal, or the spatial pattern of the complex sense-impression" (**1,** 247; italics in original).

The connection between McDougall's theory of perception and his general hormic theory is so explicitly stated in the last part of this quotation that it needs no further word of comment.

I shall criticize this theory from four points of view:

(a) All shapes, as all spatial properties, which can be perceived presuppose an innate or acquired mental disposition, which the retinal stimulus, or the pattern of the complex sense-impression brings into play [note that the two factors are identified with regard to this function]. Two questions arise imperatively with regard to this proposition: which dispositions are innate, which acquired, and how *can* any disposition be acquired? An example of an acquired disposition must be the plough which we see in the sky. "I recognize it immediately in virtue of the relative positions of the several points of light. For, in virtue of previous experience, these points in these relative positions are for me a whole; . . ." (**1,** 232). In his *Gestalt Psychology,* which is one of McDougall's main sources, Köhler wrote: "No previous experience could separate Cassiopeia from the other fixed stars around it. As far as everyday experience goes, they all move together" (**12,** 154). Moreover, why do I see the seven stars of the plough in the familiar shape and not in another, for instance as a completely closed figure, such as M. Hertz has constructed (see **14,** 168). Such facts demand an explanation by factors of organization and refute the empiristic explanation; but McDougall ignores them. Like all empiricists he does not undertake the task of showing how these dispositions actually were originated, though he claims that they were developed by differentiation from a primordial undifferentiated cognitive disposition, the disposition that supplies the organism only with the awareness of *something there* (**1,** 260 f.). I forbear to repeat the argument against explaining a performance by the assumption of a disposition, which I have given in the previous section with regard to conative dispositions. Instead I must point out that McDougall's theory of dispositions being brought into play by stimuli, or by sense impressions, has no place for the differentiation of such a disposition. A key can open a lock, but it cannot change it.

(b) How, so my next question runs, can the disposition be brought into play? This question is not specific to McDougall's theory. It applies to all theories which want to explain spatial shape

and order through the interplay of sensations and dispositions. In the past these dispositions were usually considered entirely as memory disposition, but whether the dispositions are innate or acquired makes no difference for this particular problem. For, so argued von Kries in 1901, how is it possible for a new excitation to find an old disposition if the new excitation is in any way different from the one that created the disposition? In reality we recognize a circle whether it be large or small, here or there, blue or green. If a circle seen now can bring a disposition of a circle seen formerly into play, then the circle as a psychophysical event now must be similar to the psychophysical event of some time ago in order to bring the disposition left behind by it into play; that is, it must be "circular" before it interacts with the disposition, otherwise it cannot find it.[6] McDougall speaks of a key that turns a lock. But this metaphor does not help his case: the key is either the retinal stimulus, and that has no similarity with the resultant organized percept, or the complex sense-impressions; and they also can have no similarity with the "meaningful percept," otherwise McDougall would not need them both: if the sense-impressions were like the percept, then they alone would suffice.[7] I might also point out that a key does not turn a lock either one half or twice its own size. McDougall's theory, therefore, can mean no more than that by some unintelligible trick of nature certain keys turn certain locks; but why they do so we neither know nor can hope ever to find out.

(c) This negative criticism will make the reader wonder why McDougall elaborated his theory. There is a good reason for it, and that is Lotze's argument against nativism in space perception, the argument that pure location of a physiological process cannot have any effect, and therefore cannot account for our seeing objects at different places. McDougall accepts this, but tries to connect it with some form of nativism, because animals seem "to exercise a similar power of spatial thinking with very little prior individual experience" (**1,** 242). The only nativism that is compatible with Lotze's argument is his nativism of a capacity for perceiving spatial relations contained in our native constitution. Again it has completely escaped his notice that G.P. accepts Lotze's argument but develops from it very different and truly dynamical principles. In a paper which I quoted in my book (p. 281) Köhler discusses the

[6] See **14,** 463 f.

[7] See a similar argument, directed by Köhler against Bühler's theory of relations (**8,** 126 f.).

case of a definite process-distribution occurring successively at two different cerebral places and raises the question what difference can the different cerebral location make for the corresponding experience. "The answer has to be this: as long as the total process pattern is not affected in any of its functional properties, so long *no* change of the phenomenal object can be expected" (**13,** 355, my translation). But this negative statement leads him to a positive development of the brain-field theory: "The very *place* at which a part of the phenomenal structure will be seen, can depend only upon some property manifested by the *psychophysical event itself*, but not upon the relation of this event to definite areas of the brain-field" (*loc. cit.*, p. 356). From the point of view of G.P., both Nativism and Empiricism were answers to a wrong question.

(d) My last argument shall be a brief question: since McDougall treats temporal patterns on the same basis as spatial ones (see **1,** 234 f., 247), does he also assume for every phrase, for every melody, we hear a pre-existing cognitive disposition, innate or acquired? How do we hear melodies for the first time, how does the composer "find" them?

Methodology

I have used the space at my disposal for discussing two of the three main points at issue between McDougall and the G.Ps. I can no more than rename the third. McDougall's method is fundamentally different from that of the G.Ps. This must have appeared all through the preceding discussion. The concepts he uses as cornerstones for his building seem to us unable to bear the weight of the structure. Where he uses disposition, conative and cognitive, where he speaks of experience, of interpretation and meaning, we find that he classifies phenomena by subsuming them to very general and not very scientific concepts, and then prevents their being fruitfully attacked by such classification. He is right in saying that the naturalist is able to predict through classification—e.g., that a certain bird, whose species has been established, will migrate at a certain date to a certain place (**7,** 63). But this kind of prediction is of the pre-scientific kind; biologists are the last to be satisfied with it, and I am convinced that McDougall himself belongs to these biologists. G.Ps. also belong to that group. They want to know why the swallow exhibits this migratory behaviour, and they are optimistic enough to believe that they need not be satisfied with the recourse to some blind and unexplainable urge or conative disposition, but may

some time be able to explain this, and possibly any kind of behaviour, in the same concrete way in which the physicist explains the motions of stars and atoms. The physicists had to construct simple and pure cases in order to develop their truly systematic knowledge of the inorganic world. We psychologists try to follow their lead by producing conditions which, though of necessity ever so much more complex, are relatively simple and pure with regard to the law they are to exhibit. If mental life looks poor when viewed through the eyes of our experiments, this does not discourage us; for we believe that knowledge grows slowly, and that it will only grow if we are never satisfied with solutions that are no more than new names for old riddles.

* * * *

My discussion was very incomplete. I had to omit many points of McDougall's criticism, but I was guided in my selection by the wish to discuss the essential points. Thus I have forborne to clear up several misunderstandings of my own text, because they seemed to me of less importance in the battle of principles.

McDougall's teleological hormism is opposed to hedonism and utilitarianism. In this opposition he finds the G.Ps. at his side. He is also opposed to intellectualism; if by intellectualism is meant that tendency that historically found its most poignant expression in David Hume, then again the G.Ps. are his brothers in arms. But if he goes further and turns from the Apollinian to a thoroughly Dionysian view, then I have to part company with him. For whatever is great in our world has its roots equally deep in the emotional drive and the clarity that is reason. To separate these two factors as two merely co-existing ultimates appears to me a flight from science into some other realm; to choose Apollo, the god who drives the sun's chariot across the sky, as the god of the pure armchair intellectualist, strikes me as a gross parody. Did not Apollo play the lyre, and could the Ninth Symphony have been written without a well-nigh godlike power of clarity and form?

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NEWS AND NOTES

Denmark

The Ninth Congress of Medical Psychotherapy in Copenhagen, Oct. 2-4, 1937.

After the reception of the delegates on Friday, October 1, at 8 P.M., when the representatives of thirteen countries were introduced to one another and their hosts, Dr. P. Bjerre and Dr. O. Brüel, the Congress was opened in the Domus Medica on the following day. In his opening address President C. G. Jung (Zürich) expressed his satisfaction at the really international composition of the Congress—evidence that the methods of psychotherapy were spreading and developing in defiance of geographical, lingual, and political barriers. Two more introductory addresses were delivered by Bjerre (Stockholm) and by Brüel (Copenhagen).

Then the first main theme—Psychotherapy and General Practice—was introduced by two very instructive general addresses by Kogerer (Vienna) and Allendy (Paris). These were followed by more special papers on this subject.

Brüel stressed the importance of the general practitioner for the future development of psychotherapy. Many neurotics consult, in the first place, their family doctor, who is well acquainted with the patients' antecedents and, having known them as children, has a unique possibility of transference (uncle-imago, or elder brother-imago). Unfortunately, the physician knows very little about neuroses and their symptoms, partly because his training has been one-sidedly physiological, and partly because in many countries there are no state institutions where the physician could improve his inadequate knowledge of psychotherapy and medical psychology.

The practitioner may not have time enough to become acquainted with so-called major psychotherapy. However, there remains the "psychotherapia minor," i.e., Le Bon's "statement-repetition," Coué's autosuggestion, Schultz's autogenetic training, the easier measures of hypnotic suggestion and—last but not least—psychocatharsis as well as enlightenment on psychotherapeutic basis. In any case, a more intensive study of medical psychology on the part of the general practitioner is desirable to prevent the patient from seeking the assistance of laymen. A physician with an adequate knowledge of medical psychology would be a very useful link between the psychotherapeutic specialist and the general population with which he is in close contact.

Next, Neugarten (Berlin) gave a brief account of religious factors as "short-cuts" in psychotherapy. Following him, William-Olsson (Stockholm) gave an important exposition of what he termed The Sleep Problem in Hospitals. Having at his disposal very extensive material collected in the course of the last years in Sweden by the Swedish section of

the International Association, he showed that the patients in the big hospitals suffered from a general lack of sleep, often amounting to three hours a day. The causes underlying this very regrettable "sleep-deficiency" are commonly such trivial things as putting the wards in order for the day, scrubbing the floors, and so on; and these in their turn are usually due to the early hours of the doctors' rounds. The sleeping hours are not only unsatisfactory but actually unnatural, because at all times of the year the patients are awakened at almost ridiculously early hours (5 or 5.30 A.M.). On the other hand, they are prepared for sleep often in the middle of the afternoon of a radiant summer day, the result being an excessive and irresponsible use of drugs. In most cases these sleeping drugs are necessary only because of the unsatisfactory mode of sleep. Varde (Malmö, Sweden) read a paper on the Methods of the Governmental Clinic for Nervous Diseases in Sweden; while the well-known Prof. Sihle (Riga), who attended the Congress with his son, spoke on The Problem of Diagnosis from the Synthetic Viewpoint.

Since Pollak (Prague) was not able to come, Strauss (London) spoke on The Psychogenetic Factor in Asthma, a lecture at which the reviewer could not be present on account of his duties as the General Secretary to the Congress. During the last lecture of that day Mayer (Heidelberg) showed the German Government's instructional film on hypnosis and discussed the forensic aspects of hypnosis which have so often given rise to popular misunderstandings.

The second main theme of the proceedings—The Study of Psychotherapy—was introduced by van der Hoop (Amsterdam), who in a very illuminating lecture recommended the educational analysis of the student himself as a preliminary to his later ability to understand many of the patients' difficulties during treatment. Bjerre (Stockholm) took a more general view of this problem and firmly stated the dire want of facilities for younger doctors seriously to take up the study of psychotherapy, in face of the lack of interest in this field on the part of universities, governmental educational institutions, and mental hospitals. Every effort in this direction is limited to private initiative, although among the public and the patients there is a great need for responsible psychotherapy. Also Boehm (Berlin) stressed the need of instruction on lines not unlike those laid down by van der Hoop. At the conclusion of this symposium, Schultz-Hencke (Berlin) shed light on the problem of teaching therapy.

Then followed Forel (Prangin, Switzerland) as the first speaker of the third group—Other Papers—with his much appreciated lecture on Clinical Psychotherapy. After him, Meier (Zurich) spoke on Spontaneous Manifestations of the Unconscious—one of those contributions which are particularly valuable because by empirical means they confirm the more theoretical results of medical psychology and thus bring the latter into line with other branches of medicine. The same very gratifying comment applies to the discourse by Kühnel (Berlin), who in the course of his work with maladjusted young men observed spontaneous alterations in the mental make-up of his subjects under the

influence of the treatment with autogenetic training according to the method of Schultz. This fact corroborates experimentally the psychosynthetic hypothesis (held, for instance, by Bjerre), according to which the main part of the process of mental healing is spontaneous, whereas the psychotherapeutic measures operate only through the successive elimination of those factors which are opposed to the patient's natural recuperative powers.

Popesco (Sibiu, Rumania) spoke on The Duty of the Universities to Teach Psychotherapy—a duty not only towards the students but also towards the patients. Furthermore, the same speaker gave a short and clear-cut résumé of The Opinions of Leading Rumanian Psychotherapists on the Practical Application of Psychotherapy which revealed their enviable unanimity—unusual in this field—as to the particular therapeutic methods which should be applied according to the different nature of the corresponding nervous complaint. It was a pity that only a minority of those present were adequately familiar with the French language, in which these interesting contributions were spoken. Especially the Danish Government, the university authorities and the hospital directors ought to have heard about the urgent need of a chair for psychotherapy.

Very interesting and original was the subject of von Hattingberg's (Berlin) exposition on The Relations between Psycho-analytical and Normal Psychology with demonstrations. The speaker submitted his views as laid down in his recent work *Ueber die Liebe* (Lehmann, Munich, 1937). Lowenfeld (London) gave a lantern lecture on A Method of Direct Objective Representation of the Nature of Children's Phantasy. Among the illustrations of her mosaic test was a little garden made by a girl of seventeen, not lacking in serpents either of Freudian or of Biblical significance (or both). On the same day, Meloun (London) should have spoken on The Psychopathology of Handwriting, but was prevented from attending through illness.

Much interest was aroused by Baynes's (London) paper, Psychological Demonstration of Drawings of a Schizophrenic Artist. In his peculiarly convincing, matter-of-fact way—which made a marked impression on those present—the speaker related a case history demonstrated by lantern-slides. The inner mechanism of the schizophrenic mind, so often described in words, was actually thrown upon the screen before the audience. Not only the tendency towards the alienation of the "lower" (emotional) from the "higher" (ideal) parts of the patient's disposition was beautifully demonstrated, but also the "split" in his personality was strikingly visible in several of the drawings. This was, on the whole, a very valuable contribution which clearly illustrated the psychogenetic factors at work in schizophrenia. Schmaltz (Offenbach) also showed a series of symbolic pictures in the course of his lecture on Individuation Shown in Drawings and Pictures, which aroused so much interest that the audience unanimously asked the speaker to continue after the time allowed.

The last discourse was on Hypno-Suggestive Effects in General Practice by Ferenc Völgyesi (Budapest). This gifted lecturer caused quite a

sensation not only by his demonstration of the great practical value of the hypno-suggestive therapy, but also by his statement that one of the pioneers of this therapeutic method was a Danish doctor, Dittrich Brandis, who at about 1800 launched psychotherapeutic ideas, which in the main are still quite up to date. Even to many Danish members of the Congress this aspect of psychotherapeutic medical history was quite new, and it was indeed a very graceful gesture on the part of Völgyesi to link together—in the final paper of the Ninth Congress—the past and the present Danish psychotherapy.

O. BRÜEL.

Copenhagen.

BOOK REVIEWS

PERSONALITY: *A Psychological Interpretation.* By Gordon W. Allport. New York: Henry Holt & Co., 1937. xiv, 588 pp.

To say that a book is the best on the subject has become such a frequent practice in *literary circles* that reviewers in the scientific field often refrain from making any superlative statements, or at the most will compromise by resorting to a guarded inclusive phrase like "one of the best," which both may do an injustice to the book under discussion and indiscriminately raise the stock of other books that are much inferior. Dr. Allport's large solo work may, however, with a clear conscience be set down as the most valuable textbook on personality, notwithstanding the many points on which we take issue with him, as will be seen presently.

The author's previous contribution to the field and his long experience in teaching the subject of personality have led many who knew that such a book was in process to expect a *magnum opus* which would put its predecessors in the shade. Perhaps some have held out altogether too high expectations in their belief that all problems relative to the new offshoot of psychology would be solved. Dr. Allport, as a matter of fact, has succeeded in turning out a polished instrument for the understanding of this vast field; and, even if some of the weighty material will be inaccessible to the delicate minds of a good many undergraduates, there is no doubt that he has produced a textbook eminently suitable as a basis for discussion and methodological guide.

The very title of the work gives us a clue to the author's approach. It is not a psychology of personality, nor a system of personality. We are provided with the subheading *A Psychological Interpretation;* and in this phrase, Dr. Allport has aligned himself with the broader school—that of understanding, interpreting, rather than of measuring. It is an interpretation par excellence; and much as one may differ with it, it will still serve its purpose to stimulate thought, to set off issues against a broad background, and to lead up to definite conclusions.

Dr. Allport has clarified his position in the first chapter, which perhaps will act as a shock absorber for the average student, and which, were it not for the systematic requirement, might have been reserved for the end of the volume. It is here that we find what very rarely appears in American textbooks, a scientific orientation, a sifting of viewpoints, a discussion of postulates, premises, and laws and an examination of the historical *étapes* in the development of the study, which, I suspect, sooner or later will be labelled "personology." This chapter is thorough and lucid in treatment, and necessitates a wealth of reading and an advanced intellectual maturity to follow.

It is a pity that although this is the day of the speaking commentator, it is not the age of the written

commentary. Still more is the pity that even a lengthy review must still be too brief for issues to be threshed out.

Almost every other paragraph in the first chapter is a challenge which calls for an answer from opponents. In evaluating the various approaches to the study of the individual, e.g., each of the schools and tendencies is dismissed in turn with a citation of the objections. Many of the objections are, of course, valid. Others, again, are at least debatable; for the foundation of this or that particular school is not fully perceived. To take only two instances: if psychoanalysis preoccupies itself with problems of psychopathology, and not with the normal processes, it is not to be thus discredited, any more than medicine is to be taken down a peg for concerning itself with disease. It is precisely the contribution of psychoanalysis to have shown that there is no dividing line between the normal and the abnormal (cf. "the psychopathology of everyday life") and therefore it is meaningless to talk about normal and abnormal except in the lay sense. The same argument applies to the stricture against Kretschmer and his biotypes, but we shall return to this later.

In the second chapter, we are taken through the maze of theological, philosophical, sociological, juristic, biophysical, biosocial, and finally psychological meanings of the term *personality*, or, as it was originally referred to, *persona;* and we learn that there are no fewer than fifty such meanings, truly enough to make a beginner throw up his hands in despair. Perhaps we might feel that two or three steps in this winding staircase may be taken in one hop, and that Dr. Allport is too cautious in his plodding ascent, yet the numerous diagrams, indicating derivations and pedigrees, seem plausible; and, at any rate, are an excellent lesson in classification.

It is when we come to the definition of personality, as formulated by Dr. Allport, that we begin to knit our brow. "Personality is the dynamic organization within the individual of those psychophysical systems that determine his unique adjustments to his environment." The definition seems to be both abstract and redundant. Every psychophysical organization may be said to be dynamic. The organization is naturally within the individual. Where else could it be? And if we are speaking of systems within an individual, they would have to be psychophysical. Furthermore, all adjustments are unique; and every psychophysical system determines adjustments to an environment.

We thus see that in spite of the explanations which follow every term in the definition, nothing remains of it after we take it apart. Let us not, however, wrangle over definitions, for it is quite probable that divergent as Dr. Allport's definition is from other psychological definitions of personality, his concept does not differ essentially from those of others.

More arresting is his correlation of character and personality. In contradistinction to the general notion that character is the volitional phase of personality, Allport would put the two terms on a par, and courteously give character the *congé* as outside of the psychological universe of discourse; for to him "Character is personality evaluated, and personality is character devalu-

ated" (p. 52). "Since character is an unnecessary concept for psychology, the term will not appear again in this volume, excepting in quotations from other writers, or in a clear historical context."

Here we stand before a fundamental difference. Allport's view may be best refuted by showing that personality and character proceed *pari passu*. Character may be treated descriptively, genetically, integrationally, etc., in a word under the same rubrics as personality is discussed in the selfsame book. On the other hand, there is an evaluation to which the whole subject of personality leads up that is unavoidable. To speak of rich personalities, well-integrated personalities, maladjusted personalities, desirable or undesirable traits—what is it but to impress an evaluative stamp on the concept? And if there were no evaluation to be attained in the final analysis, there would be no need of studying this subject. Hardly an element of personality may be mentioned but it immediately suggests an evaluation. We need not call it ethical, but the goal undoubtedly lies in the realm of the values. If we bow character out of the psychological court, we shall be forced to do the same with personality.

Nor will the authority of John Adams, who is cited as saying "Character is the moral estimate of the individual, an evaluation," be of any avail here. John Adams would have been the last psychologist to have sponsored this use made of his dictum. If moral evaluation attaches more to character than to any other ingredient of the personality, it is solely because character was presumably to correspond with the will, *which was regarded as the instrument of conduct; and therefore, improvement even of the other components was ascribable to it alone,* while the physique, the emotions, and even intelligence could not be modified consciously except through the will, or in its broader aspect, character.

The chief merit of the third chapter, which concludes Part I of the book, lies in the survey and estimate of the several psychodiagnostic approaches to so-called characterology. Here are passed in review physiognomy, phrenology, etc. The literature is covered with great care, and the various doctrines are appraised with a judicial sense.

The genetic phase of personality occupies the whole of Part II. Here the growth of the psychophysical individual is followed from the gene to the mature personality: heredity —motivation—differentiation—integration—maturation—learning—consciousness of self-suggestion—self-esteem—feeling of inferiority—compensation — psychoanalytic mechanisms—functional autonomy—sudden reorientation—trauma—self-objectivation—insight—humor. It is not so much the author's own beliefs that come to light here as the wise selection of the material and his lucid exposition. The section on integration with its illuminating diagram (p. 141) is especially commendable.

A few words, however, must be said about the author's doctrine of functional autonomy which appears to favor James's view of the transitoriness of instincts, except that here motives take the place of instincts.

The theory that motives succeed one another in the development of the individual and that they may not have a common root is in keeping with the elementary data of the goal

idea and spontaneous attention. The motives may even seem to be at odds with one another. This reaction formation in psychoanalysis, when a character trait assumes the opposite form at a certain age in the individual's life, points to the latitude even of Freud in the matter of heterogeneity of motives, but the question is *whether the particular succession is not determined by the type of the individual,* as well as the circumstances. There is ample experimental evidence that the chain of motives which is forged by the schizoid type, under identical conditions, is not the same as that of the cycloid type; in which case the constitutional factor is somewhat of a governor in this functional autonomy. Functional autonomy takes place within the autonomy of the particular individual.

It is in Part III that Allport's conception of personality finds its focussing point; for nowhere does he assume as positive a stand as on his theory of traits. Beginning with the search for elements in personality, after a thoroughgoing survey of various sets of elements proposed, he comes to grips with the core of personality, the general trait, defending it valorously against the specificity views of the Columbia School, which would tend to regionalize the trait according to the occasion or universe of activity. The critique of the Hartshorne-May inquiry is sufficiently trenchant to put the advocates of specificity on the defensive.

We of course become involved not only in problems of correlation and the transfer of training but in philosophical analysis. In reply to Thorndike's fundamental utterance that "by identical elements are meant mental processes which have the same cell action in the brain as their physical correlate," Allport asks the pertinent questions: How elementary is an element? and "How identical is an identity?"

In true dialectic fashion, he makes use of the ancient Megarian Sorites argument (where are we to draw the line?) which, in the matter of specificity, at least, is decidedly effective. The author is here armed with a veritable arsenal of ammunition in the shape of experimental and social data that bid fair to crush the opponents' doctrine that each act, fact, habit, etc., is something by itself and cannot be blended into a generalised superstructure. In other words, the burden of proof is on those who maintain that the trait is only a biosocial concept, in reality a fiction, and not a biophysical entity. The chapters dealing with this controversy are not only the most sprightly in the book but are excellent examples of close reasoning.

The relationship of trait and attitude, trait and type, trait and determining tendency is pursued in all its intricacies, until the *nature* of traits presents itself for examination. We are told how traits are discovered. We are afforded glimpses into the dynamic character of the trait, and we are instructed about the differences between genotypical, phenotypical, and pseudotraits. The impression is gained that the author regards Lewin as the originator of this distinction, citing his work in 1927. The dichotomy was referred to in H. Hoffmann's *Das Problem des Characteraufbaus,* 1926, and seems to be an outgrowth of the Kretschmer school, where it was taken over from botany and zoölogy.

To return to the main theme; after a searching inquiry into the independence, consistency, and distribution of traits, Allport attempts to fit the traits into a unity, which, naturally enough, the concept of personality presupposes, stumbling again on an ancient problem, *viz.*, the *problem of the one and the many*, but with him, it is the modern conception of unity, in its various phases, that is expounded.

Part IV is devoted to the analysis of personality. Here we are introduced into the methods of studying personality of which, through the aid of a neat circular diagram, no less than fifty-two are listed, in addition to common-sense intuition, and later explained. Again it is possible that too many pigeonholes are created, which might tend to confuse rather than to clarify; but, on the other hand, there will always be time for eliminating too closely related methods. Dr. Allport has apparently aimed at exhaustiveness; and the effort is not only worth while *per se;* it is a splendid didactic example and exercise. Much of this ground has already been covered in the author's collaborated work *Studies in Expressive Movement*, where concrete use has been made of some of the methods.

It is perhaps to be expected that the consideration of the intuitive approach to personality is reserved for Part V, which is labeled "Understanding Personality." The basis of the alignment of methods is not always clear; for instance, why the psychiatric interview should come under the head of observational methods while the psychological interview should be accorded a place in the interpretative rubric; but Dr. Allport rarely deviates from his central position so far that we are unable, with a little prodding, to follow him in his classifications.

In the few chapters constituting Part V, the whole gamut of *understanding psychology* is sounded in various modulations—intuition, empathy, *Verstehen*, and personalism are all described and criticized and brought into relation with each other. The last paragraph in the book not only sums up the situation but reveals to us the moral tone of the work, perhaps the guiding star, which the author, all the while, has attempted to conceal from us as irrelevant to the subject.

"Thus there are many ways to study man psychologically. Yet to study him most fully is to take him as an individual. He is more than a bundle of habits; more than a nexus of abstract dimensions; more too than a representative of his species. He is more than a citizen of the state, and more than a mere incident in the gigantic movements of mankind. He transcends them all. The individual, striving ever for his own integrity, has existed under many forms of social life—forms as varied as the nomadic, feudal, and capitalistic. He struggles on even under oppression, always hoping and planning for a more perfect democracy where the dignity and growth of each personality will be prized above all else."

Lengthy as this review has become, it has not been possible to present a sustained and adequate account of a text which is replete with variegated data and bristles with observations from the most heterogeneous sources. It is a universal document bespeaking the author's wide scholarship and unusual perspective. Perhaps it is breadth rather than

depth which characterizes the volume. Withal, the critique of the dozens of schools, systems, approaches, movements, and points of view is at times refreshingly penetrating. If Dr. Allport, in an unguarded moment appears to miss the point in an adversary's theory or adduces a result from an experimental investigation which is inconclusive or even inconsequential, it is due rather to an emotionally-rooted astigmatism (inherent in the best of us) which may blur the vision of a particular line than to an ill-considered stand or to insufficient knowledge. I suspect also that he is tempted to steer a middle course because he sees the weaknesses of both extremes with equal vividness, even though the middle course may leave him stranded.

To cite one illustration: the doctrine of types is by no means popular in the United States; and Dr. Allport, in common with the specificists, can see its weaknesses. Even Kretschmer does not seem to be immune to the objections raised on all hands, the most significant in his case being that we are supposed to infer the normal from the abnormal types, whereas obviously the process should be reversed.

Here, however, even more than in the psychoanalytic sphere, the distinction between normality and abnormality does not exist; for Kretschmer emphatically states his schizothymic and cyclothymic types to be biological and not pathological categories. Allport's question then, "Is the normal personality simply an undistinguished edition of the mentally diseased?" (p. 76) becomes inapplicable. Furthermore, when he remarks that the view is not held with reference to organic conditions, he forgets that for a century the contrast between the *apoplectic habitus* and the *phthisic habitus* has been referred to in the medical literature, that the very concept of diathesis in organic medicine is based on the presupposition of types, and that modern researchers in allergy would support this fundamental premise.

When Allport, in a slightly dogmatic mood, declares that "there is no continuum of states from cancer to no-cancer," we must remind him that the diagnosis of cancer in its earliest stages, and even its prognosis before the proliferation of cells has begun, points to a negation of his assertion. He undoubtedly is aware of the studies on cancer types and tuberculosis types that have appeared within the last few years not only in Germany but in this country as well.

If a trait is to be envisaged, as Allport has proven to my mind conclusively, as a biophysical entity, there is scarcely any reason why the concept of type could not be accorded a similar status; for all we need to understand by that concept is a certain constellation of genes or unit characters which disposes an individual toward such and such behavior or experiences. If the gene is biophysical, the collection of genes should likewise be a real entity. But even if we liken the "type" to a collective unit, comparable to a nation, it still calls for consideration. The circumstance that the particular set of types we select depends on our special purpose should not militate against our acceptance of the notion any more than the existence of social groups should be denied because there are so many different kinds and cross divisions.

On the subject of psychodiagnostics Allport is a bit skittish. He deals with it both in Parts I and IV,

and in both places his attitude seems to be ambivalent. To some extent he is deterred by the possibility that quacks might exploit an emphatically favorable opinion of, let us say, graphology. Surely psychology or psychoanalysis should not be taken to task because there are numerous charlatans plying their trade under that or the other name. Not even medicine has reached such an exalted scientific standing that its diagnoses can be absolutely relied on—and the consequences of wrong medical diagnoses are far more disastrous than in the case of graphology; yet Dr. Allport would not think of asking us to wait until the reliability coefficient is .90 or even .75 for that matter.

A psychologist may caution the public sufficiently by pointing out that there are only a few graphologists in the world who have had sufficient experience and who have made enough of a scientific study of the subject to be consulted; furthermore that the newspaper graphologists who have commercialised their dabbling knowledge certainly do not come within that class, and that many professionals, while often successful in their analyses, should not be taken too seriously. The principles of graphology and physiognomy remain intact after this *cave* on the part of the personality investigator.

In conclusion, the worst that might be said about Dr. Allport's work is that at times the canvas is a bit crowded and its author emerges somewhat saturated in scholastic methodology, which consists in the unnecessary multiplication of classes and categories.

There are spots in which greater compactness might have been an asset; for instance, one might question the introduction of the transfer of training controversy at considerable length in the treatment of specificity of traits. Again, the many historical footnotes on phrenology may well have been omitted in a book that is already "bottom-heavy" with references and citations. Such information could be found in histories of psychology.

One of the best things that might be said about the volume is its systematic organization. In this respect it takes its place in the forefront of American textbooks. Its range is remarkable and its diction of a superior quality. Dr. Allport has revealed himself a skilful systematizer without manifesting a system of his own. Far from detracting from the production, it rather enhances its value as a text.

At the same time, or perhaps for that very reason, the book lacks an *élan vital.* Although its five parts hang together very well, the work reminds us of a symphony with five movements each closed in itself with no *leitmotif* running through them. There is congruence and consistency but not enough of a dynamic interaction among the separate parts.

Dr. Allport's work has set a standard which, if it will be difficult for authors to emulate, will, let us hope, discourage the publication of inferior productions pretending to be textbooks on personality.

A. A. Roback.
Cambridge, Mass.

The Nature of Human Nature and Other Essays in Social Psychology. By Ellsworth Faris. London and New York: McGraw-Hill Publishing Co., 1937. xii, 370 pp. with index. 21/-.

The strong points of this book are its criticisms of many contemporary writers of popular reviews, reada-

bility almost like that of a novel, and the author's fund of ethnological knowledge, derived from seven years' residence in a Bantu village in the Congo. He has been especially influenced by the Americans, Cooley and Mead.

The book may be said to be, though in no invidious sense, a crusade against ethno-centrism, whether in the form of placing too high a value on one's own traditions at the expense of those of others, or in the form of supposing, with McDougall, that dissimilarities between people are due to differences in the number or strength of their instincts, or in the form of a lack of the insight which is born only of having as much knowledge of the idioms of a strange people as of one's own idioms.

Equally the book is a crusade, but this time a less cautious one, in favor of attributing practically all differences to sociological factors. All moral influence, the author holds, is exerted almost entirely through the primary group. The failure of our modern schools to create a primary situation accounts for their inability to transmit a real cultural influence to the young.

The *coup de grâce* is given to discredited theories of imitation, a very uncritically used term. Very valuable are the chapters on punishment —a phenomenon shown to be entirely absent from the behavior of some primitive peoples.

A research on the effects of punishment on modern children is included, but some of the questions put seem suggestive in form and some of the answers cite extreme cases.

A discussion is given of modes of personality study available to sociologists, such as guided autobiographical documents, interviews, community studies, and statistical ecological studies.

There are three or four persons whom Faris loses no opportunity to attack. These include McDougall and Thorndike, with their stress on instincts; from each of them he gives a few quotations which are really a bit devastating. Still more does he dislike Watsonianism; but lower yet is psychoanalysis, which, he implies, is but a worse extreme begotten out of opposition to the extreme of behaviorism.

A strong chapter is that in which the author criticizes our methods of judging the mental capacity of preliterates; half-a-dozen sources of frequent errors are here pointed out. An effective repudiation is given of pseudo-ethnological views, all from the background of the author's actual experiences among the Bantus. He recommends that psychologists should go to the villages and make detailed physical and mental tests, of which a good beginning was made by the Cambridge University Expedition to Torres Straits and later to the Todas in India.

PRYNS HOPKINS.
University of London.

SURPRISE AND THE PSYCHO-ANALYST: *A Study of the Conjecture and Comprehension of Unconscious Processes.* By Theodor Reik. Translated by Margaret M. Green. London: Kegan Paul, Trench, Trubner, 1936. 294 pp. including a short index. 12/6.

In this work, Dr. Reik deals with that which to a psychoanalyst is more essential than technique even, namely, "the psychological process of cognition from *within*" when he is *vis-a-vis* his patient. It is shown that even a dog's mental states are

so affected through sensory perception of the condition of another dog's skin, odor, breathing-rate, etc., that he can apprehend whether this fellow-dog intends playfulness or serious attack. Therefore this mode of cognition pre-dates verbal, or even conscious, thinking. Its essence consists in (a) our experiencing a momentary arousal in ourselves of the same mental states as the other person has, and (b) our then bringing our reaction to this experience into consciousness.

"Civilisation" tends to inhibit this capacity. The inequality, also, "of cultural development comes to be a serious hindrance to psychological comprehension." Every psychoanalyst must resurrect this sensibility in himself. In this book many illustrations are given of physicians being guided by it, and subsequently finding the guidance justified by events.

Psychologists with strongly experimentalistic predilections may therefore find this work confirmatory of their suspicions that psychoanalysis is not a science in their acceptance of this word. Others will be mollified by the frank purpose of the author not to make the least pretensions for its being such.

If I were to select one chapter of the book for especial appreciation, it would be that on "tact, time and rhythm." The tact of the analyst consists largely in timing rightly the criticisms he is called on to make in accord with the rhythmically-determined phases behind the patient's communications. Moreover, "the analyst's most significant knowledge must be *experienced* by himself, and springs from the reservoir of our suffering, through which we learn to understand that of others." As contrasted with mere *"malheur* or unfortunate experiences" that give at best prudence, "suffering, consciously experienced and mastered, teaches us wisdom."

We congratulate Dr. Reik upon a book evincing deep insight; and upon having found a translator capable of rendering him into English of distinguished literary style.

PRYNS HOPKINS.
University of London.

CHRIST'S PSYCHOLOGY OF THE KINGDOM: *A Study in Modern Psychology of the System of Jesus in the Gospels.* By L. W. Lang. London: Group Publications, 1937. 200 pp. with appendix and index. 8/6.

The author holds that Jesus planned to establish a "kingdom" in two senses—for the future, an organized church, and for the present, a mental condition. In connection with the latter, He held a systematic philosophy of human nature. To expound this philosophy, and to confirm it through evidence from biographical facts about eminent lay persons, is the purpose of this book.

Jesus' psychology is called "psychormic." This means that He considered personality to be attributable to the way that a sentiment about one's self was unified around a germinal idea, and was interested in how such a seed can be sown effectively.

In the Appendix is given a classification of Jesus' parables and sayings, according as they bore on topics on which He held definite views, *viz.*, the need of arousing interest in order to get truths across, the pleasure-principle, the reality-principle, the problem of self-evaluation, self-identification (of the disciple with the master), transference, development of altruism, application to one set of ideas of relationships

educed from another, unconscious growth and fruition of an accepted idea, action as the indication of character, and the phenomenon of spiritual rebirth.

To psychologists, the most valuable feature of the book can easily lie in its unusual wealth of extensive notes on the childhood of noted persons—politicians, literati, and even criminals. Indeed, one feels frequently, although not always, that the remarks on sayings of the central personage, Jesus, are hewn rather cavalierly into a psychological springboard from which the author can leap into this favorite avocation of retailing the incidents which have bent famous characters to their careers. On these, moreover, he generalizes often rashly, whereas his contentions about Jesus' own views are well supported.

PRYNS HOPKINS.
University of London.

VISUAL PERCEPTION. By M. D. Vernon. Cambridge: Cambridge University Press, 1937. xii, 247 pp. with index. 15/—.

In this book the author attempted to include a very complicated and important field in psychology, viz., the experimental investigations in perception. She finds in the complex perceptual process three essential aspects—constructional and assimilative processes and responsive tendency—existing simultaneously and inextricably inter-related. When perception rises to the level of appreciation, an affective attitude in the observer with regard to the perceptual situation is noticed. In cases of faulty perceptions the effects of familiarity based upon deeply rooted and well-organized schemes of experience have been noticed. The quality of experience depends on the interactions of the "internal" and "external" forces; if they reinforce, a stable experience results, and when they conflict, the configuration takes the line of the stronger of the two.

To account for the individual differences in perceptions, the need of typological classification has been felt; but the low statistical reliability and disagreement among the workers regarding the norms as also the inherent empiricism make the position weak, though not untenable. Typology does not afford ample clues to the psychology of perception.

Much qualitative data is presented with regard to the development of perception in children. An inability to perceive the more subtle relationship between parts of complex perceptual stimuli has been noticed. Children are liable to "subjective" and "illusory" perceptions. Psychoanalysts working on a different line have stressed the prevalence of fantasy in children. In conclusion, Miss Vernon has admitted the inadequacy of these researches to give us the "actual structure of the functional schemata." But it may be suggested that attempts of experimentations on the basis of psychoanalytical findings may remove such inadequacy.

It is to Miss Vernon's credit that she has been able to describe experiments and findings with no particular theoretical bias. Her book is very valuable to a research worker in the field of perception.

R. GHOSH.

PSYCHOLOGY OF PERSONALITY. By Ross Stagner. New York: McGraw-Hill Book Co., 1937. x, 444 pp. $3.50.

In the last few years there have been encouraging signs, principally in the form of very able studies of

the total personality, that the psychologist is taking over with vigor and capability that investigation of the emotional aspects of human behavior so long abandoned to the psychiatrist. Dr. Stagner's study is a worthy contribution to this new movement, for it approaches personality in an equally well-informed manner from the clinical, the laboratory, the statistical, and the sociological viewpoints.

The opening chapters are concerned with methodology, perhaps in that rather self-conscious way reminiscent of older academic psychology. However, the second section of the book marches straightway into practical issues of measuring personality traits, defining traits, assessing character patterns, and investigating the interrelations and origins of attitudes. Section three studies the dynamics of personality, appetites, and aversions, and the contributions of Freud, Adler, and Lewin. The concluding section studies the relation of personality to society, maintaining the same blend of empirical evidence and wide discussion.

An irritating feature of the book is the tendency to looseness of expression and the misuse of terms which have already gained precision. "Personality structure" is employed to connote detail and content, e.g., "ways of talking, ways of thinking, daydreaming, blushing in front of a crowd" instead of in the more natural sense in which Spearman speaks of the "structure" of abilities, or Freud of the structure of drives in the Ego, Id, etc. Again the term "mental set" is slurred to cover a permanent trait, part of which, for ought we know, may be temperamental or constitutional in origin.

Perhaps the last is merely a part of the environmentalist bias with which the book may justly be charged. Biologists may wonder at the confident statement that "The difference between a Frenchman and an Engishman is not in the heredity of either, but in the fact that one likes his roast beef, while the other prefers truffles," or at a chapter on appetites and aversions which ignores completely McDougall's arguments for innate propensities. And does the statement that "the determination of a child's I.Q. is dependent to about 80% on nature and 20% on nurture" mean an 80 per cent parent-child commonality or that 80 per cent of the I.Q. variation in existing communities is due to hereditary factors?

The most startling omission lies in the absence of any discussion—beyond a brief derogatory reference to Webb's work (now twenty years old)—of the contribution of the London school, when Dr. Stagner deals with the typology and analysis of personality patterns. To depend on the lame and limited method of examining the internal consistency of questionnaires is a miserable substitute for a planned and comprehensive factor analysis. A foundation of typology which neglects w, f, c, and p factors is unnecessarily incomplete.

Criticism of such omissions will not be considered harsh when it is borne in mind that the book is a long one, and otherwise amazingly comprehensive in the knowledge of current research which it displays. It is furthermore written in an interesting fashion, packed with widely selected and colorful illustration, and furnished with references of value both to the student and the advanced research worker.

RAYMOND B. CATTELL.
Columbia University.

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